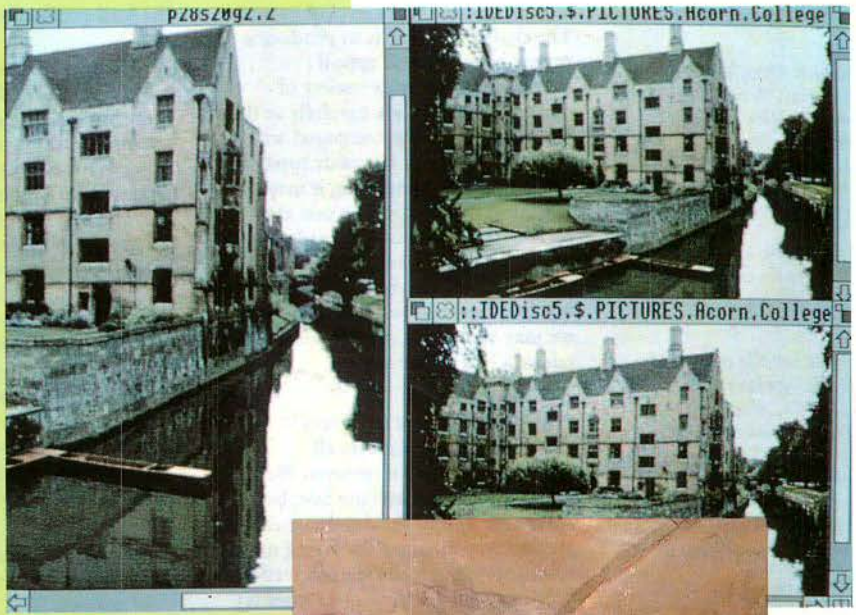
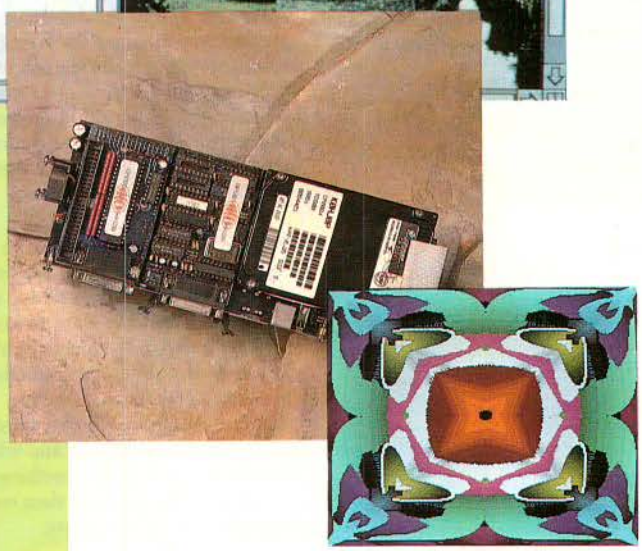
MAY 1993
Volume 6 Issue 6
Price £1.90

RISC user

The magazine for users of Acorn RISC computers

Working with Images
The Ultimate Expansion





Kaleidosprite

Acorn Advance

S-Base: A Programmable Database

Wordz of Wizdom

MAY 1993
VOLUME 6 ISSUE 6

RISC user

THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

RISC User is published by RISC Developments Limited.

Co-Editors:
Dr Lee Calcraft, Mike Williams
Assistant Editor: Kristina Lucas
Technical Asst: Nick Mellor
Production Asst: Sheila Stoneman
Advertising: Sarah Shrive
Subscriptions: Helen O'Sullivan
Managing Editor: Sheridan Williams

All rights reserved. No part of this publication may be reproduced without prior written permission of the Publisher.

The Publisher cannot accept any responsibility whatsoever for errors in articles, programs or advertisements published. The opinions expressed on the pages of this journal are those of the authors and do not necessarily represent those of the Publisher, RISC Developments.

RISC Developments Ltd. ©1993
117 Hatfield Road, St Albans,
Herts AL1 4JS.
Tel: 0727 840303 Fax: 0727 860263

ISSN 0966-1913

As you will see from this month's *Write-Back* pages we have featured a number of letters from readers expressing views and comment about RISC User. We always welcome feedback from readers, and we do try to respond to the views expressed. Not everyone has the same mixture of interests, or the same level of expertise. The challenge for us is to produce a magazine which will appeal nevertheless to a wide variety of readers. We also look carefully at the content of one issue compared with another, so if your favourite topic fails to materialise in one issue, it may well appear in the next, or the one after. We do listen to what you the readers have to say, and if we can accommodate your interests, and believe the result will be of interest to other readers, then we may well try to include something relevant in a future issue.

One area which we treat very seriously, as I am sure do all magazines, is that of reviews. We try to ensure that reviews are fair, both to the reader and to the developer of the product in question. Reviewing may sound easy, but to do the job well is time consuming. A reviewer must try to place him or herself in the position of the average reader, and address the kind of question which a potential purchaser might ask.

We also encourage reviewers to comment and to criticise. We believe that readers want more than a mere list of features. They want to know whether software performs its allotted task well or indifferently, whether a product is easy to use, whether software is robust, whether hardware is well designed and made, and whether it is value for money. If something fails to match up to expectation then readers again have a right to know.

We encourage reviewers to be critical, but we also encourage them to address their criticisms to the developer. Some developers respond well to constructive criticism which, if reported, is in my view a further recommendation. At the same time, there is little point in voicing undue criticism of a pre-release version of some product if the problems have already been resolved in the final production version.

We try to select reviewers who can not only write well and in an interesting style, but have a good background knowledge of the subject, preferably (but not necessarily) on systems other than just the Archimedes. Such people are not easy to find. Most of our current panel of reviewers are readers of RISC User who have responded to our needs over the years. If you are interested in reviewing for RISC User, and believe you can achieve the standards we have set, as outlined above, then please write to me, detailing your relevant experience and the equipment which you use or to which you have access. We will, of course, pay you for anything which we publish.

There is just one more, quite separate point I would like to make about RISC User reviews. RISC User is published by RISC Developments, which also designs and develops its own software and hardware for the Archimedes range. In order to maintain the independence and integrity of the magazine, it has long been our policy not to review any of our own products. This constitutes a certain disadvantage to us, and perhaps to our readers, but it does ensure that we can honestly and fairly review all products from other suppliers, with no compromise over possible comparisons with our own products. Similarly we make no concessions to advertisers, in order to increase advertising revenue, by influencing editorially the contents of a review. We try to be honest and, as they say, to tell it how it is.

M.W.

CONTENTS

FEATURES

Working with Images	14
The 80 Column: More printing advice	17
Multiple Desktop Boots for RISC OS 3	25
Education: Developing Picture Processing (Part 2)	34
C Notebook: Hints and Queries	37
Using the RISC OS Task Window	40
Search and Replace	44
The PC Emulator Survival Guide (Part 3)	49
DTP: Good Impressions	52
Into the Arc: Understanding the jargon	63

UTILITIES AND APPLICATIONS

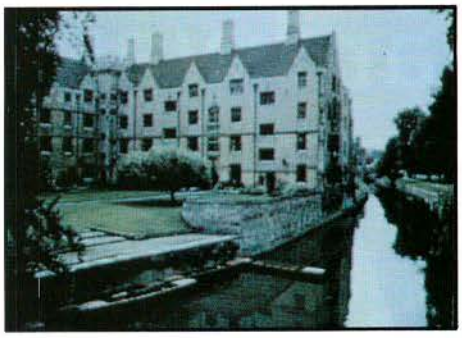
Kaleidosprite	18
Basic Program Formatter	73
Enhanced Sliding Block Puzzle	73

REVIEWS

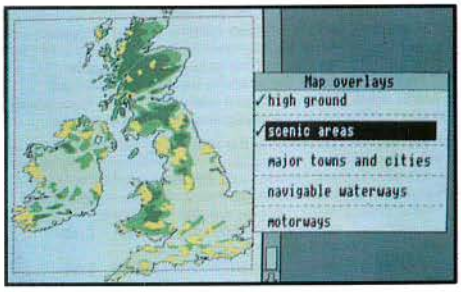
Acorn Advance: Integrated software suite	9
The Ultimate Expansion? HCCS micropodules	12
S-Base: A Programmable Database	21
Professional Scorewriting: PMS	28
Wordz of Wizdom: Colton's word processor	31
The New Integrex Colourjet Printer	42
Granny's Garden	46

REGULARS

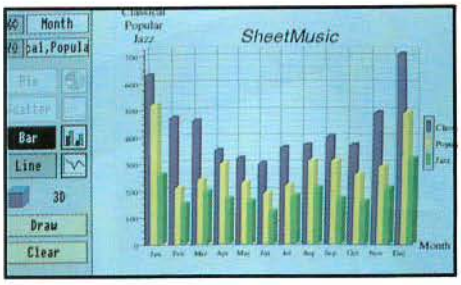
News	5
RISC User Disc Contents	38
Hints and Tips	55
Points Arising	57
Write-Back	59
Technical Queries	66
RISC User Subscriptions	70
Classified Ads	71
Advertisers' Index	71



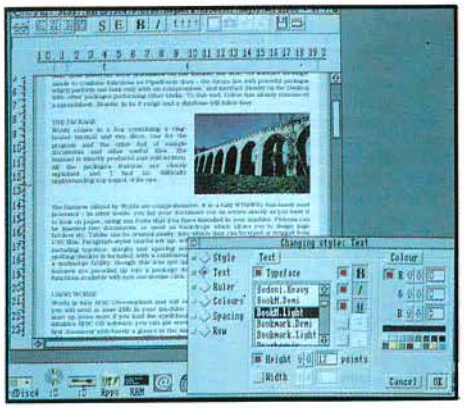
Working with images
page 14



Developing picture processing
page 34



Acorn Advance
page 9



Wordz
page 31

RISC Developments' Hardware

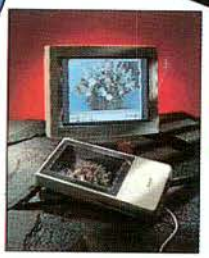
Ethernet Network Cards

A range of fast Ethernet cards for Acorn computers to be used in conjunction with Acorn's new AUN network software. Together they provide an excellent network system running many times faster than Econet, but still fully Econet compatible. Three types of card are available:

Archimedes / A5000 card which fits in a single expansion slot.
A3000 / A3010 / A3020 / A4000 card which fits in the mini expansion socket.
A3020 / A4000 card which fits in the new internal network socket.

All the cards provide connection to standard 10Base2 Thin-wire Ethernet, and the Archimedes/A5000 card also includes an AUI connector for other network types. As well as supplying Ethernet cards, RISC Developments can arrange a complete networking service from design through to supply, installation and maintenance. Please contact us with your requirements.

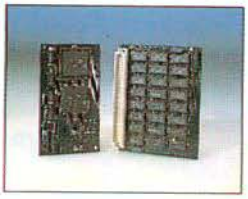
4600e	**Archimedes/A5000 Ethernet Card Half Width Expansion Card**	**£139**
4601e	**A3000 series/A4000 Ethernet Card Mini Expansion Card**	**£139**
4602e	**A3020/A4000 Ethernet Card Internal Network Card**	**£159**



Spectra Colour Scanner

Spectra is a revolution in colour scanning systems for the Acorn range of computers. Its clever design means that it is as simple as you could possibly want and yet as powerful as you will ever need, producing professional results every time. It is a flat-bed scanner, which means that you simply lay your original under the scanner, load the program and 'click' on Scan. The scanner will then do the rest, scanning in 16 million colours. The result is a sprite that can be in full colour, 256 grey-scale or mono depending upon your requirements. This is a full multitasking application and so you can continue using the computer even while it is scanning. The Spectra kits include the scanner itself, an interface card, user guides, software and everything else you need. Versions are available for the Archimedes & A5000, A3000 (External) and A3010, A3020 & A4000 internal.

0118g	**Archimedes or A5000**	**£549**
0119g	**A3000 internal**	**£549**
0117g	**A3000 external**	**£569**



A5000 8Mbyte RAM Card

A new card that upgrades the total RAM of the A5000 to a massive 8Mbytes which is ideal for running a number of today's sophisticated applications together. Versions are available for 2Mbyte and 4Mbyte standard A5000s. Owners of 2Mbyte machines already upgraded to 4Mbyte will need to remove the existing RAM Card, and we will offer a £50 refund if this is a RISC Developments or Acorn model. Please note that because of the nature of this upgrade, it must be fitted by an Acorn approved surface mount service centre. There is no fitting charge when carried out by our own engineers.

0147g	**A5000 2->8Mbyte upgrade**	**£499**
0148g	**A5000 4->8Mbyte upgrade**	**£429**

A3000 / A3010 / A3020 User Port, Analogue and Econet Card

A unique expansion card that provides a BBC-compatible User Port and Analogue converter together with an optional Econet interface all on one board. As well as the price advantage over separate User Port and Econet cards, this board provides a boot ROM to allow Econet to be used with AUN without loading modules from disc. Other possibilities include fitting both Econet and Ethernet interfaces to the A3020 or A4000, allowing them to act as AUN Gateway stations.

4610e	**User Port and Analogue Card**	**£44.95**
4611e	**User Port, Analogue and Econet Card**	**£79.95**

RISC developments

RISC Developments Ltd.
117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 840303 Fax. (0727) 860263

Educational discounts are available on all products. All prices exclude VAT.
Carriage charges are £5.50 + VAT for items marked 'e' and £8 + VAT for items marked 'g'.

News

PERFORM A SERENADE BY CLARES

Clares' new MIDI package, *Serenade*, referred to in last month's News pages has now been released at £135.00 inc. VAT. This is a multi-tasking 16 track MIDI sequencer (record and playback) with a host of features.

Serenade

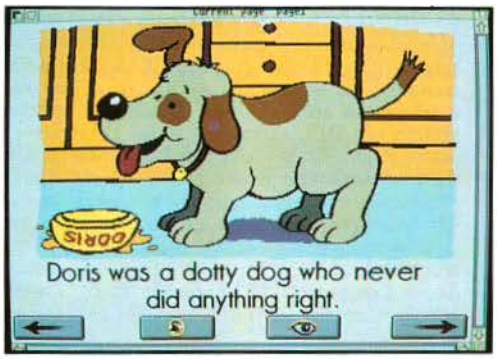
Clares has also announced that *Perform*, the application for playing Rhapsody scores (rather like a jukebox does records) supplied with VoxBox is being released into the public domain. *Perform* will also accept MIDI files, Amadeus format sound samples and even voice modules. Programmes of music can be saved and re-called at any time, and played, fast-forwarded and rewound during any part of the performance.

For more information contact Clares at 98 Middlewich Road, Northwich, Cheshire CW9 7DA, tel. 0606 48511, fax 0606 48512.

SHERSTON'S NAUGHTY STORIES

Sherston Software is establishing a name for its innovative and graphically appealing educational software and has now released three new packages for the Archimedes range.

Badger Trails is a multi-media pack which provides an insight into the life of the badger. The package includes a computer simulation, video and other resources. The complete pack costs £39.95 ex. VAT.

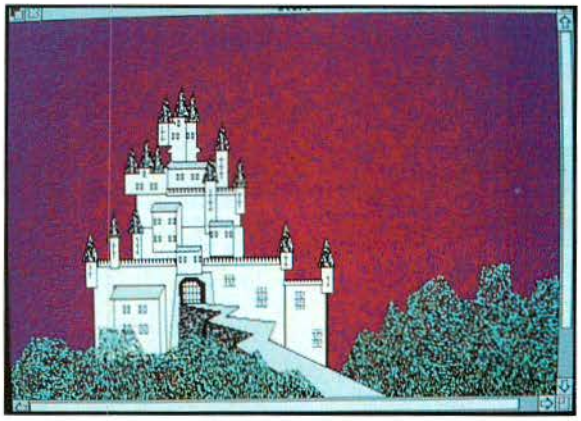


Naughty Stories

For budding artists, Sherston has released *Splash*, a primary school art package at a budget price of just £19.95 ex. VAT. *Splash* claims to combine the best aspects of drawing packages like Draw with freehand painting tools found in Paint, and can be used to create everything from simple cartoons to more complex scenes, and text can be included too.

Badger Trails

Sherston's third new offering is in the form of 'talking books', a collection of six separate tales under the title of *The Sherston Naughty Stories for infants* and older children with reading difficulties.



Splash

The stories built around *Billy the Bothersome Bully*, *Doris the Dotty Dog*, Terry's Tricky Trainers and other characters, use recorded human speech rather than computer generated sound. Each story comes with its own full colour story book at a cost of £9.95 ex. VAT, or £49.75 ex. VAT for the complete collection. A second series of Naughty Stories is already under development and scheduled for release later this year.

News

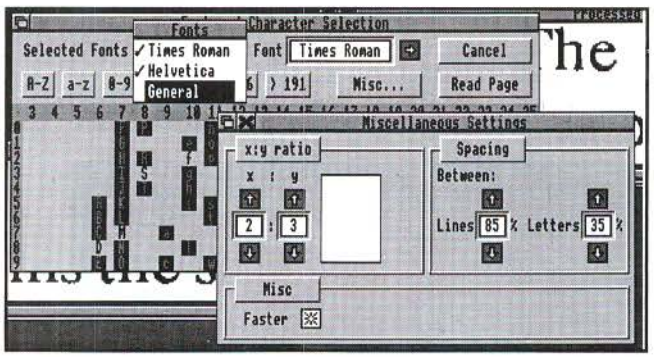
For more information contact Sherston Software Ltd., Swan Barton, Sherston, Malmesbury, Wilts SN16 0LH, tel. 0666 840433, fax 0666 840048 for more information.

ARM GOES EAST

ARM Ltd. (in which Acorn has a major stake) is the designer of the ARM series of processors used in Acorn's Archimedes range of computers. ARM has now announced the opening of its Japanese office following the introduction of a new investment partner, Nippon Investment & Finance (NIF), and the appointment of Sharp Corporation as a licensee. Investment by NIF is aimed to provide ARM Ltd. with a strategic partner in Japan to enable ARM to develop a bridgehead in the Far East. Sharp has been licensed to manufacture and market ARM processors and related products on a worldwide basis. For more information contact ARM Ltd. at Swaffham Bulbeck, Cambridge CB5 0NA, tel. 0223 813000, fax 0223 812800.

OCR TO THE FORE

RISC Developments is developing a new OCR (optical character recognition) package which will convert a scanned image of text into a genuine text file, which can be edited and used within word processors and DTP packages. Throughput is expected to be between 70 - 400 words per minute, depending on the quality of the original scan and the speed of the processor being used; accuracy should be between 95 - 99% depending on the print quality



Optical from Neurotron

of the original document, quality of the scan and whether the font used is 'known'. The software, as yet un-named, will be trained on Times, Helvetica, Courier, Bookman, New Century School Book, Avant Garde, Palatino and Garamond fonts. Because of its style of operation it will recognise other similar fonts, and will cope with slanted and wavy lines of text. It is expected to sell for approximately £50 and be ready around July. Contact RISC Developments Ltd. at 117 Hatfield Road, St Albans, Herts AL1 4JS, tel. 0727 840303, fax 0727 860263.

Neurotron Software is another company developing software to accomplish the same task. *Optical* is the name of a multi-tasking application which incorporates an intelligent spelling checker to cut down on the number of reading errors. The software also has facilities for defining and recognising unusual fonts. Optical has been priced at £59 for a single user version, or £149 for a site licence. Further details from Neurotron Software, Birch Tree House, The Street, Petham, Canterbury, Kent CT4 5QU, tel. 0227 700516.

TESCO COMPUTERS FOR SCHOOLS '93

Tesco and Acorn Computers are repeating their *Computers for Schools* promotion following last year's highly successful scheme. As before, anyone shopping at Tesco supermarkets will receive a voucher for every £25 spent in the store. The vouchers are intended to be collected by schools who can then exchange them for a choice of Acorn computers (including the A4 and Pocket Book), and related hardware and software. The 1993 catalogue includes all the latest Acorn machines, plus CD-ROM drives and a wide range of primary and secondary software, plus items for special needs computing. The scheme runs until 23rd May 1993. For more information contact 'Computers for Schools', 59 Russell Square, London WC1B 4HJ, tel. 071 637 7216.

LONGMAN LOGOTRON BACK TO ROOTS

Logotron first made its name in the educational world with its implementation of Logo for the BBC micro, with later versions for the Archimedes range. There is now a new, cut-down version called *FirstLOGO*. This is a fully RISC OS compliant, multi-tasking Desktop application for any Archimedes with a minimum 1Mb of memory. While not a full implementation of Logo, FirstLOGO does offer a low-cost introduction to the language. FirstLOGO also works in French and Welsh as well as English, and you can work in one language and see your work in another. FirstLOGO costs £24 for a single copy, £72 for a primary site licence (prices ex. VAT).

Longman Logotron has also released a set of activity cards for use with *Numerator*, and this is available free to all registered Numerator users. It will be supplied from now on as part of the Numerator package which has been reduced in price to £39.00 ex. VAT. Longman Logotron are at 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS, tel. 0223 425558, fax 0223 425349.

ACORN LATEST ON KODAK PHOTO-CD

Acorn says it is still evaluating code following its agreement with Kodak to port the Kodak Photo-CD standard for use on the Archimedes. Various developments are under way including an updated version of CDFS, extensions to the C Library to handle Photo-CD, and a sample application to view thumbnail pictures from CD disc. Acorn is also considering updating ChangeFSI to convert Photo-CD images to Archimedes sprites. Acorn expects these developments to to be completed early in the second half of 1993. For more information contact Acorn Computers Ltd., Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN, tel. 0223 254254.

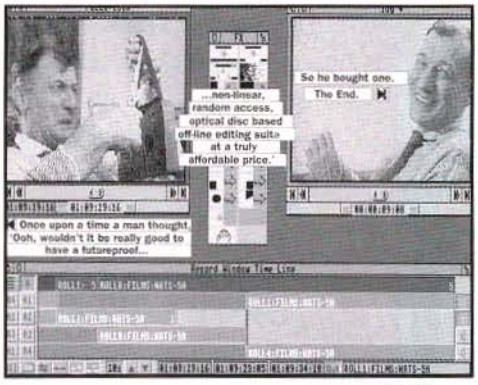
ArcScan INDEXES TO PRACTICAL ELECTRONICS

RISC User reader Mr.M.Kay has produced indexes in ArcScan format for the last three years' issues of *Everyday Electronics*, *Practical Electronics*, and the *Maplin Magazine*. The *Electronic Magazine Index*

library disc is available for £5 inclusive only from M.Kay, 69 Cobnar Road, Woodseats, Sheffield S8 8QD.

OFF-LINE EDITING - AT A PRICE

Optima is a new off-line editing system for broadcast quality video which runs on a standard Archimedes system. Using optical disc storage which can store up to


So he bought one.
The End.
...non-linear, random access, optical disc based off-line editing suite at a truly affordable price.
Once upon a time a man thought, 'Ooh, wouldn't it be really good to have a futureproof...

Optima

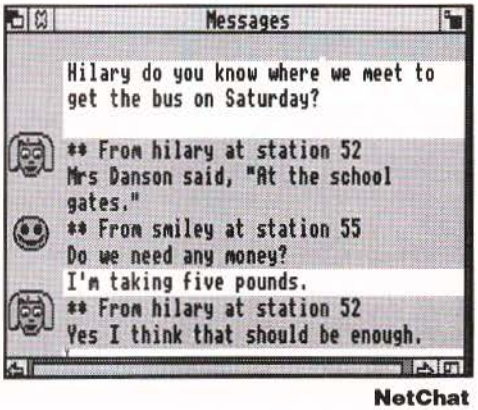
three hours of rushes, the system includes cuts, dissolves, wipes and four tracks of audio. The package will also interact with other Archimedes-based software. Optima costs from £12,950 (yes, twelve thousand), and more information is available from Jeffi Chevallier at Random Distribution on 071 287 3230.

IMAGE GALLERY CD-ROM

Not only does the *Image Gallery* on CD-ROM include over 1100 images on a wide range of subjects, but the disc can be accessed by owners of Archimedes, Amigas and PCs as it contains search and retrieval applications on disc for all three platforms. Image Gallery costs £52.88 inc. VAT from Eesox, 5 Hillfield Road, Comberton, Cambridge CB3 7DB, tel. 0223 264242.

XOB HELPS NETWORK USERS

XOB has announced a new version of its established teletext server software which is now AUN compatible. AUN (Acorn Universal Network) is the new combined Econet/Ethernet standard launched last year by Acorn for the Archimedes range. The XOB server is multi-


Messages
Hilary do you know where we meet to get the bus on Saturday?
** From hilary at station 52
Mrs Danson said, "At the school gates."
** From smiley at station 55
Do we need any money?
I'm taking five pounds.
** From hilary at station 52
Yes I think that should be enough.

NetChat

tasking, features intelligent queueing and page buffering, and will deliver teletext pages to stations on Econet and Ethernet networks, over bridges and through gateways. It is also capable of taking pages from the Morley teletext adaptor. Terminal software is also available for the BBC model B and Master series machines for compatibility. A site licence for the teletext server software costs £154.00 ex. VAT.

XOB has also announced *NetChat*, a network communication system providing facilities for users of Acorn networks not previously available. NetChat allows users to communicate with each other via a conferencing system allowing simultaneous conversations between several users. A number of other extensions and functions are also included. A site licence for NetChat costs £84.00 ex. VAT.

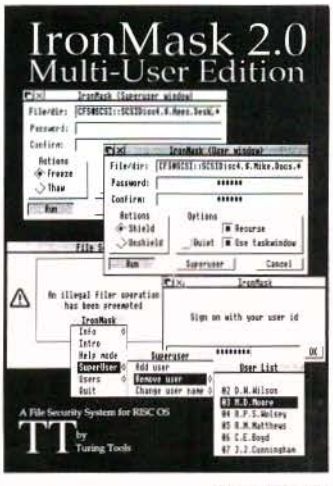
Contact XOB, Balkeerie, Eassie, Angus DD8 1SR, tel. 030 784 364.

OPTECH CD-ROM DIRECTORY

Optech's latest catalogue of CD-ROMs runs to 60 pages and lists approximately 400 titles available. The target system for each CD is given, and a good number are suitable for the Archimedes. The catalogue certainly gives some idea of the growing number of CD-ROM titles available. Optech Ltd. are at East Street, Farnham, Surrey GU9 7XX, tel. 0252 714340, fax 0252 711121.

FILE SECURITY ON NETWORKS FROM TURING TOOLS

A multi-user version (v2.0) of *IronMask*, the RISC OS file security system by software house Turing Tools has been released. This new version costs £65.00 inclusive for installation on a single computer, and £195 inclusive for a site licence. Educational site licences qualify for a discount. IronMask v1.2, the personal edition, continues to be available at the now reduced price of £49.00 inclusive. Upgrades from version 1.2 to version 2.0 are also available on application. For more information contact Turing Tools, 149 Campbell Road, Cowley, Oxford OX4 3NX, tel. 0865 775059.

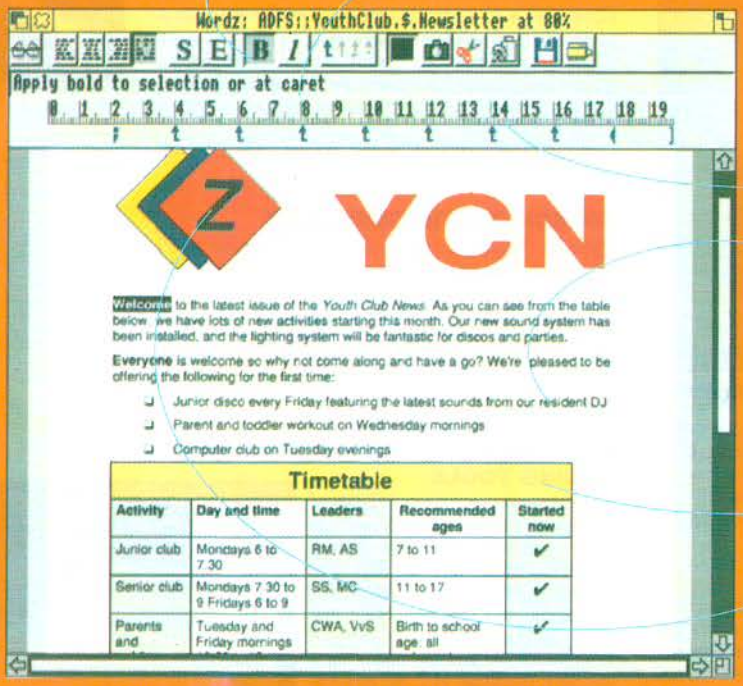


IronMask

HCCS ANNOUNCES MORE MICRO PODULES

HCCS has announced the *Laser Express* micro-podule to directly drive appropriate laser printers such as the Canon LBP-4. HCCS has particularly targeted this card at users of the new A3000 and A4000 systems which cannot accommodate any of the existing direct drive cards available. The cost is just £249 ex. VAT for those who already have a suitable multi-podule (see review in this issue), and £269 for the *Laser Express Starter Pack* which includes a multi-podule. Initial deliveries start mid April.

HCCS has also announced the immediate availability of its *Vision* and *HiVision* mono and colour digitisers at prices from £49 ex. VAT to £129 ex. VAT, and a range of SCSI expansion cards at prices from £69 ex. VAT to £99 ex. VAT, all designed to fit the Ultimate multi-podule expansion system. For further information contact HCCS, 575-583 Durham Road, Gateshead, Tyne & Wear NE9 5JJ, tel. 091 487 0760, fax 091 491 0431.


Wordz: ADFS::YouthClub.$.Newsletter at 88%
Apply bold to selection or at caret
YCN
Welcome to the latest issue of the Youth Club News. As you can see from the table below, we have lots of new activities starting this month. Our new sound system has been installed, and the lighting system will be fantastic for discos and parties.
Everyone is welcome so why not come along and have a go? We're pleased to be offering the following for the first time:
Junior disco every Friday featuring the latest sounds from our resident DJ
Parent and toddler workout on Wednesday mornings
Computer club on Tuesday evenings
Timetable
Activity | Day and time | Leaders | Recommended ages | Started now
Junior club | Mondays 6 to 7.30 | RM, AS | 7 to 11 | ✔
Senior club | Mondays 7.30 to 9 Fridays 6 to 9 | SS, MC | 11 to 17 | ✔
Parents and | Tuesday and Friday mornings | CWA, VvS | Birth to school age: all | ✔

At last, the word processor the Archimedes has been waiting for. A program that's so easy to use you'll be able to create great-looking documents the first time you use it. The facilities used most are in the *button bar*, and the *status line* gives you instant feedback. Just click and drag in the *ruler* to set margins and tabs; click on a button to cut and paste - it's that easy.

Wordz has all the features you'd expect from a state-of-the-art word processor. The powerful style editor gives you complete control over all aspects of your text; *font, spacing, margins,* and *colour*. Unparalleled control over *tables* including dragging to resize columns and rows. Speedy check-as-you-type or whole document spell checking. Import *pictures* and text from other programs, including PipeDream.

Wordz is the first of a family of programs which share the same easy user interface and include dynamic data linking. The spreadsheet Resultz will be available in mid-1993.

Wordz costs £99+VAT. *"Is it easy to use? It's falling-off-a-log easy to use."*

word"Z"!™ ®©

1993...4...

for a free Wordz brochure, complete and return this coupon

name

address

postcode

COLTON software

2 Signet Court, Swanns Road,
Cambridge CB5 8LA
Telephone 0223 311881
Fax 0223 312010

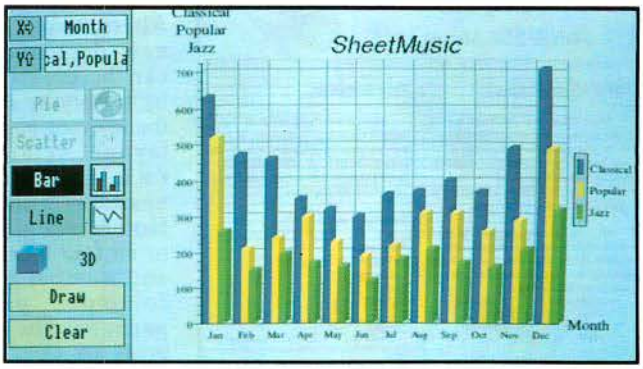
Acorn Advance

Mike Williams makes an initial assessment of the Advance integrated software package from Acorn.

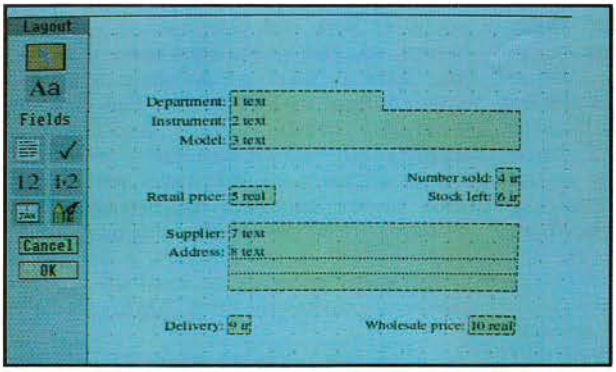
A recent trend on many computer systems has been the emergence of integrated suites of programs providing a collection of basic applications. Claris Works on the Apple Macintosh is one such which has achieved a considerable degree of acclaim, Microsoft Works for Windows for PCs another.

Acorn has now announced a similar concept for the Archimedes range, to be known as Advance. Acorn says that this will meet a growing demand for such an integrated suite on its 32-bit systems, and that it expects Advance to sell well in both the educational and home user markets.

Advance consists effectively of four applications: a word processor, a spreadsheet, a database, and a graphs facility. Although marketed as an Acorn product, Advance is a collaboration between Acorn and three other software houses, Computer Concepts, Iota, and CRM (who developed Schema for Clares). The four applications rely very much upon the intrinsic multi-tasking nature of RISC OS together with the use of standard file formats for their integration.



Using the graphs facility to produce 3D bar charts



The database showing record design on a grid

Despite the multiple origins of the software, Acorn has clearly done much to achieve the integrated package it sought. All components of Advance present a common and consistent user interface - no 3D icons as we have come to expect from Computer Concepts for example.

Four major applications as an integrated suite is a considerable amount of software. Our intention this month is to present an overview of Advance, based on a pre-release version, with more detailed examination of its constituent parts in future issues.

THE ADVANCE APPLICATIONS SUITE

Advance is supplied on four discs, two program discs and two data discs (the latter containing examples used in the tutorial sections of the manual). The documentation is in two parts: a 400 page User Guide, and a separate 100 page Project Guide.

Advance loads as a single application (in reality just a front end). The icon bar menu then gives access to the four components. Although these are four separate applications as far as the Task Manager is concerned, only the single Advance icon appears on the icon bar, thus emphasizing the integrated approach.

THE WORD PROCESSOR

The word processor in Advance is a full WYSIWYG word processor. It will handle text, using outline fonts, and graphics. Text can easily be entered and edited, and there is a typical clipboard feature for moving and editing larger chunks of text.

Choice of text size, font and colour are all menu options, and it is good to see that styles like bold and italic are selectable separately from the choice of font. However, leading can only be expressed in absolute terms (using points); relative leading is normally preferable.

Tab, margin and indent settings are as good as one would expect, and are set from a ruler, and rulers are named and saved for future reference. However, a quirk means that not all the ruler options are readily accessible in a window of less than full width.

Music Matters
Spring Sale
24th & 25th March 1993

About *Music Matters*...

Music Matters was established in 1952 to provide fine quality musical instruments for the growing number of Colebridge's musicians. It began business as a specialist string instrument supplier and has since expanded to stock a wide-ranging selection of musical instruments of all types.

Music Matters' experienced sales staff are employed across seven departments, carefully placed in positions which suit their own particular skill and enthusiasm. The seven departments comprise.

- woodwind
- string
- keyboard
- guitar
- percussion
- horn
- piano

The sales staff are always happy to advise and meet the musical requirements of their customers, who range from the beginner to the advanced musician.

Music Matters also stocks a comprehensive range of musical accessories, sheet music and books. It is open six days a week, 9.00 am to 5.30 pm, and is located on Colebridge's High Street. *Music Matters* has also recently opened new premises in Hastings.

How to find us...

Music Matters is located at 89 High Street in Colebridge, in the centre of the town's popular shopping area. A nearby car park off Market Road offers convenient parking together with access to the town's other shops and amenities.

Our address is:

Music Matters
89 High Street
Colebridge
Sussex
CL1 4XE

Tel: (0923) 4545

The word processor showing two column layout, header and graphic

Any document can be saved as a default. Alternatively, a new document can be created by specifying all the relevant page layout details including headers and footers, margins to all four sides, and number of columns per page. These areas are clearly identified on the working sheet (see figure 1).

Graphics can be imported and dropped onto the page at the caret position. However, the resulting frame cannot be moved directly elsewhere on the page. Instead, you need to use cut and paste via the clipboard.

Other features within AdvanceWP (as it is called) include import and export of text and CSV files, a spelling checker, a search and replace facility which can be case sensitive, plus use of wild cards and special characters, and a mail-merge facility in combination with the Advance database.

The overall impression is of an easy-to-use workman-like word processor, but one with no outstanding features, and some aspects which might have been better or more extensive.

THE SPREADSHEET

The spreadsheet layout is much like any other with numbered rows and lettered columns, and five tool icons (referred to as buttons) visible in the window above the sheet itself (see figure 2). A sheet is limited in size to 5000 cells, not enough I would have thought for the more demanding user.

Data can be entered as text, numbers, dates and times, plus of course formulae, using the Enter button (a tick). Column and row width can both be controlled very simply with the mouse pointer, though it would be nice to know what the width is.

Formulae follow normal 'computer' algebra, but must be preceded by selecting the Edit mode ('=') button first. There is no attempt at automatic recognition of what is typed. Two other buttons provide the SUM() function, and a whole menu of other functions including those for manipulating dates and times. Formulae can easily relate to ranges of cells, and can also be replicated relative to some start cell (adjusting cell references relative to the row or column).

Cell formats can be controlled by the Number format dialogue box. This gives control over such items as the number of decimal places, currency (or other) symbol before or after a value, and choice of format related to data type.

The spreadsheet application also includes Sort and Graphs options from within its own menu structure. Whereas the sort is part of AdvanceSH (the spreadsheet application), the Graphs option loads the AdvanceGR application, which can cause problems on small memory machines where this can prove impractical. Indeed the practicality of the whole integrated tools concept falls down completely if there is insufficient memory to load all the co-operating tasks you need (2Mb at least)!

A quick examination suggests that the range of spreadsheet functions is quite comprehensive, and AdvanceSH even permits references between different spreadsheets. As expected, AdvanceSH also imports and exports data in CSV format.

THE DATABASE

Creating a database within Advance starts with a blank window and a set of tools. Moving the mouse pointer over the blank area reveals an outline box which is used to mark a field. Field types are selected visually from a choice of text, integer, real, date, boolean, or graphic. This is excellent, much better than trying to remember codes or whatever used by some other databases. Fields can be positioned visually wherever

you wish, and once fixed, automatically prompt for a field name. Fields can also be resized at will. I found this approach to card design to be very easy to follow and to use (see figure 3). An optional grid also helps in positioning. Additional text and graphics can be added to the card layout, with choice of font, colour, size, etc.

Once a card layout has been created, data can be entered, and records examined using fairly typical video player type controls. Records within a file can be sorted using a key or combination of keys. However, only one ordering is possible at a time, and there is no true indexing as found in more powerful database packages.

The search option, using wildcards and various comparison operators, allows a subset of all records to be created. Subsets can also be saved for future use, and further searches can create a hierarchy of subsets.

Finally, report generation uses a layout designer very similar to the card designer referred to previously. This provides a very flexible and easy-to-use facility which is really excellent.

THE GRAPH TOOL

Pie charts, bar charts, line graphs and scatter graphs are all possible with the Advance Graphs facility (AdvanceGR). Both the spreadsheet and database applications have menu options which lead directly into AdvanceGR, or data may be imported in CSV format.

The main window, however reached, shows a toolbox to the left, and empty space to the right where any graph is displayed. The toolbox allows choice of dataset and graph type to be selected very simply, while further menu options govern other aspects in more detail.

By and large the user has little choice over the finer details of the display (colours, titling, background etc.), but the end result looks good and will serve the less demanding user well (see figure 4). However, AdvanceGR has less to offer than other specific graph packages of which I am aware.

IN SUMMARY

One aspect of Advance which impressed me was the extent to which Acorn has not only managed to impose a uniformity of style among a group of software houses, but that this consistency has been applied to a very large extent across the whole of the user interface for Advance. Whichever component of Advance you are using, the main menus look very much alike as do corresponding sub-menus, all helping to reinforce the initial learning process.

The manual is extensive, and very largely tutorial in style, based around the requirements of a single organisation (a music shop). However, there were times when I wished for a concise reference section to locate a simple fact. The manual is also well supported by example files on disc. The Project Guide is in the form of one substantial case study based around a climatic database.

A1

	A	B	C	D	E	F	G
1	Department	Instrument	Model	Number sold this year	Retail price	Stock left	Supplier
2	Brass	Cornet	John Packager Triumph	9	£900.00	3	Arnold Templeton
3	Brass	Saxophone	Larry Saddler Special	8	£1450.00	2	Sax World Company
4	Brass	Saxophone	Cat King 2	11	£1750.00	1	Sax World Company
5	Brass	Trumpet	Antler King	7	£1250.00	2	Arnold Templeton
6	Brass	Trumpet	Louis Arm Blower	6	£1500.00	2	Arnold Templeton
7	Brass	Trumpet	Falmo Classic	5	£625.00	2	John Tullen & Co
8	Guitar	Acoustic Guitar	Feldman Adler 4	14	£350.00	2	Joshua Walker Ltd
9	Guitar	Acoustic Guitar	Feldman Adler 3	21	£400.00	5	Joshua Walker Ltd
10	Guitar	Acoustic Guitar	Medley Superior	11	£325.00	5	Richard Trevlwick
11	Guitar	Electric Guitar	Waverley Classic	8	£850.00	2	Smith & Petersons
12	Guitar	Electric Guitar	GX	7	£750.00	2	Gantry Electric Guitars Ltd
13	Guitar	Electric Guitar	Bumper Susie 2	18	£900.00	2	Marshall & Sweadman
14	Guitar	Electric Guitar	Subzero Triumph	13	£900.00	3	Marshall & Sweadman
15	Guitar	Electric Guitar	Subzero Master 2	6	£650.00	1	Marshall & Sweadman
16	Guitar	Spanish Guitar	Flamenco Excellent	12	£350.00	4	Richard Trevlwick
17	Keyboard	Organ	Perry Alton 5	11	£650.00	3	Charles Stanton Ltd
18	Keyboard	Organ	Chesterton Fielder	9	£950.00	1	Charles Stanton Ltd

Typical spreadsheet display with Advance

In my view the strengths of this integrated package lie in the spreadsheet and the database applications; they are really a delight to use, especially the latter. The graphs application is very user friendly, but doesn't really have all the flexibility and user control I might have wished. The word processor is entirely adequate, but with several excellent word processors/DTP packages on the market for the Archimedes, my reaction here was one of slight disappointment.

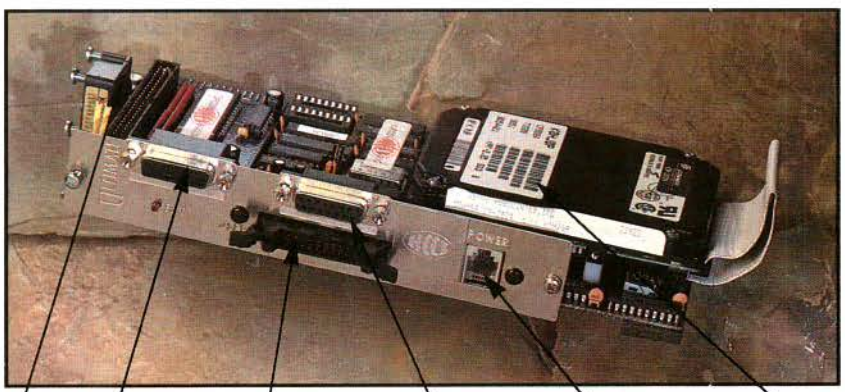
Overall I think Acorn has achieved a significant product for the type of user at which Advance is aimed, the newer home consumer market, and the (perhaps) lower level education market. I hope Acorn will continue to develop this product, and maybe consider a more extended version for more demanding users. If the concept can work well on other systems, let's hope it works for Acorn too.

Product *Acorn Advance*
Supplier *Acorn Computers Ltd.*
Price *£99*
£199 (Primary Site Licence)
£499 (Secondary Site Licence)
£99 (Additional off-site licence)
All prices exclude VAT.

The Ultimate Expansion?

David Spencer looks at the Ultimate Expansion System from HCCS.

As many people have learnt to their cost, if you buy a computer with twice as much expansion capability as you imagine you will ever need, then it can be guaranteed that a year later you will be craving for more. Unfortunately, Acorn has never been over-generous with expansion capability on its computers, and over the years many companies have sought to produce products that stretch these capabilities to the limit.



The latest to try its hand at this is HCCS which has developed what it terms the *Ultimate expansion system*. This system is different from most expansion cards in that it takes a modular approach. The idea is that you fit the Ultimate motherboard to one of the computer's expansion slots, and then plug a number of *micro-podules* into this. These micro-podules are upgrades, conforming to a new standard developed by HCCS, each consisting of a circuit board about the size of a credit card, but several times thicker.

For the normal full size Archimedes (A400 series, A5000 etc.), the motherboard will hold two micro-podules - effectively doubling the overall expansion capability. For the A3000, a motherboard that will hold three micro-podules is available and this also includes as standard a BBC Micro compatible User Port. A similar motherboard is available for the A3020 and A4000. For the A3010, where expansion is extremely limited, the Ultimate motherboard can hold two micro-podules, a User Port and a 2.5" hard disc drive. This represents a major increase in expansion capability over the normal machine. It is the A3010 system that we will look at here. For this review, the micro-podule slots were occupied by a SCSI interface and a colour video digitiser. HCCS produces, or plans to produce, many different micro-podules including a direct drive laser printer, and they are encouraging other developers to produce compatible micro-podules.

INSTALLATION

The first thing that strikes you when you unpack the motherboard is its size - almost twice that of a standard expansion card for the A3010. Indeed, the card fills up almost all the free space within the computer. In common with other HCCS products, the circuit board is blue and the back panel is a shiny chrome colour.

The actual installation proved to be extremely awkward. The problem is that the card is a very tight fit and it is impossible to get a good view of the four connectors that you have to align with sockets on the computer's circuit board. Bearing in mind that this is the sort of task I perform every working day and that I still had problems, the average user might be well advised to leave the installation to their dealer.

You also have to connect up an external power supply unit for all except the very basic User Port-only option. This is a rather weighty stand-alone unit that is probably

best sat on the floor. Finally, a tiny fan on the motherboard keeps the temperature within safe limits.

One point worth noting is that when the Ultimate system is fitted, the computer won't even power up unless the external power supply is turned on. As the external supply doesn't have an on-off switch this could prove awkward.

USING THE ULTIMATE SYSTEM

The motherboard carries a single EPROM that contains all the modules needed for the IDE, SCSI and CD filing systems, plus the User Port module and a module to control the Ultimate system itself. Presumably, different ROMs will be supplied with individual micro-podules.

A star-command, *Micropodules, lists details of installed micro-podules, in the same way that *Podules does for the normal expansion cards. There are also configuration commands to enable the IDE drive and the CDFS (CD ROM filing system). If either of these is disabled, they become totally invisible. The User Port and SCSI interface are always enabled.

The IDE drive fitted to the motherboard was supplied ready formatted, and after configuration, worked as expected. The review unit had a standard 20Mb drive, but HCCS offer various sizes up to 100Mb. Multiple partitions are supported with passwords controlling access to each, and an application called *IDEMgr* is provided to manage this.

THE DIGITISER

The digitiser micro-podule is packed full of components and has a 15-way D socket on the back. A supplied converter lead was used to connect this to the phono socket video-out connector on a video recorder.

Picture grabbing is done using an application supplied on disc. This grabs images within one frame period, and displays them in a rough format every couple of seconds. This is a compromise between low-end converters that can't cope with moving images, and real-time converters that are rather pricey. With this system, moving images can be grabbed without distortion, but consecutive frames can't be grabbed in real time, so it would not be suitable for use with Acorn's Replay or the like.

You can at any time pick an image and process it into a higher quality 720 by 254 pixel picture in up to 216 colours or 256 grey scales, which takes several seconds. This can then be saved as a sprite file ready for import into other applications.

SCSI

The SCSI micro-podule is rather sparse compared to the digitiser, containing just two chips, a couple of sockets and a handful of other components. One socket is a standard 50-way box header for connecting an internal 3.5" drive, though this option is not really possible with the A3010's limited space. The back panel contains a 26-way mini-D socket, and a cable is supplied to connect this to the more conventional SCSI socket found on devices such as CD-ROM drives. The card is an 8-bit interface providing a transfer rate of 400K per second. One thing I noticed is that it is not possible to remove the SCSI terminating resistors, as would be required if both internal and external devices are fitted on the bigger machines.

An application, *SCSIMgr*, allows the SCSI system to be set up to match the SCSI hard disc drives you have attached. In addition, as already mentioned, the standard Acorn CDFS is supplied to enable all sorts of CD ROM formats to be accessed.

DOCUMENTATION

It seems, more often than not, that I am forced to criticise the documentation of hardware products which I review, and unfortunately, the Ultimate system is no exception. The only printed documentation is a single sheet of instructions covering installation in the minimum detail possible.

Most of the other documentation is in the form of an application called an *EManual* which is an attempt at an on-screen book. The less said about this the better. Unfortunately, the pages are stored as sprites so you cannot simply output the text and read it that way. 'Emanuals' are supplied for the system as a whole and for the IDE Manager application. The former is

Continued on page 61

Working with Images

Lee Calcraft begins a new series on the use of images on the Archimedes, with a look at two widely available image translation and processing packages.

For the purposes of this short series, anything stored in a sprite or in any of the other recognised image formats counts as an image - which leaves the field pretty wide. This month I want to look first of all at translating 'foreign' image types for use on the Archimedes; and secondly at simple types of processing which can be applied to any Archimedes sprite.

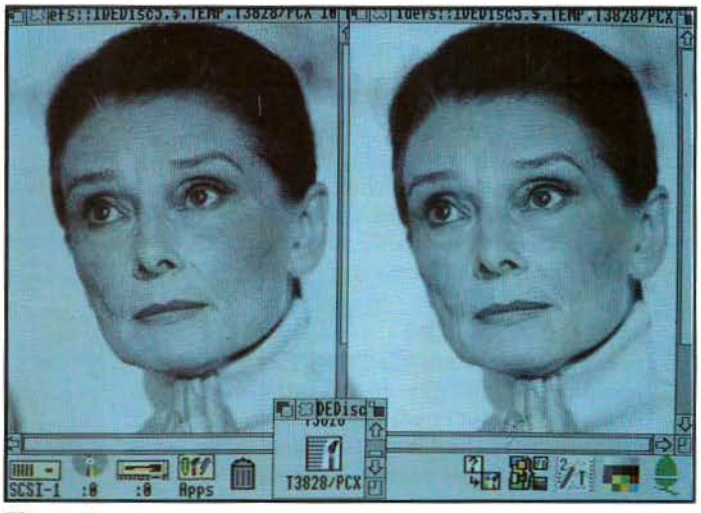


Figure1. PIX files from the Times CD-ROM converted by Translator (left hand side) and ChangeFSI. The latter is less grainy.

FOREIGN IMAGES

There is a vast range of budget and public domain image files readily available which have been originally developed on the PC, Amiga and other platforms. Assuming that such files can be obtained on a disc format readable on the Archimedes (e.g. DOS or Atari discs) it is usually an easy matter to translate them into sprites.

ENTER ChangeFSI AND TRANSLATOR

There are two very flexible image translation and processing applications available to Arc users: ChangeFSI and Translator. The first is supplied on the RISC OS 3 Support Disc, while the second - which is shareware - can be found on RISC User PD Library disc PDX2.

Both pieces of software can cope with around 30 different image formats including the well known GIF, TIFF, PCX, Clear and Targa formats. Both also provide controls for determining the way in which images are processed. A nice feature of Translator is that it has a menu option which provides a list of known image types. With ChangeFSI you must wade through a very long *Info* file using Edit. Translator also provides a well-designed set of sprites for all the image types which it knows about.

A further plus with Translator is that it can save processed images in its own proprietary *Clear* format which retains the full colour information of the original image - unlike the sprite format which reduces colour information to 8 bits per pixel. On the other hand ChangeFSI is a little easier to use, and is sometimes better at spotting a particular file format when the filetype is unknown.

Both packages use so-called Floyd-Steinberg error correction, and produce high quality results. The Floyd-Steinberg method is a form of error diffusion in a dithered image. Both packages use dithering to achieve the best representation of a processed image. This involves representing any colour not present in the colour palette of the destination sprite with a combination of adjacent pixels of specially selected colours to recreate an impression of the required colour. Inevitably in any such process it is not possible to reproduce the required colours exactly, and the ensuing colour error is diffused over the area in such a way that it is compensated for by other

surrounding pixels. It is this process of error diffusion with which the names Floyd and Steinberg are associated.

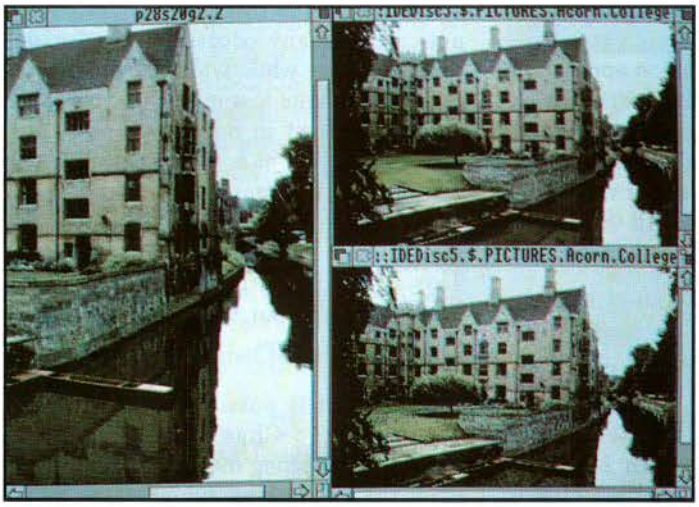


Figure 2.
A mode 28 sprite scaled down by 2:1. The ChangeFSI image (top right) retains the quality of the original (left), while in the Translator picture (bottom right) red and green pixels may be seen on the walls and elsewhere.

TRANSLATING 'FOREIGN' IMAGES

Both packages are reasonably easy to use, though you are advised to read the accompanying documentation in both cases. To demonstrate how it all works out in practice, we will first try converting a DOS PCX file using both packages. Very little in the way of setting up needs to be done in either case. ChangeFSI adopts the cunning expedient of checking the DOS file extension when attempting to decide the format of an image file, and since the name of the test file was *T3828/PCX* (a monochrome image from the Times on CD ROM) it immediately spotted it. Translator does not do this, and complains that the file is of unknown filetype. This is a bit of a nuisance when reading from CD ROM, since it means that you must first copy the file to your hard disc and retype it (since CD ROMs are obviously not writable).

ChangeFSI seems to have trouble with PCX file pixel size information, and when processing PCX and PIC files (at least), you must select *Ignore original pixel size*. If not, you will get a postage stamp for a picture. Translator does not seem to suffer from this problem.

Translation of the 60K PCX file to a 170K mode 28 sprite took Translator a rapid 3.8 seconds, while ChangeFSI languished at 7.7 seconds (with an ARM 3 in mode 28). However, it was worth the wait: ChangeFSI produced a softer, less grainy result (see fig. 1).

Figure 3. Using Translator to create special effects

Another way in which ChangeFSI scores is that the resulting image display is truly mode independent. Changing mode with Translator's display on the Desktop causes it to retain its pixel ratio rather than its observed aspect ratio. If you change from mode 28 to mode 12, the image doubles in height without changing in width - whoops!

WORKING ON SPRITES

There are also many occasions when both ChangeFSI and Translator can usefully be applied to native sprites. For example you might need to create an application sprite by scaling a larger image, or you might want to create a high resolution application sprite from a low resolution one - or produce a monochrome image from a coloured sprite, change the size and scale of a sprite or even brighten or alter the hue of a sprite image in some way. All these tasks can be achieved using ChangeFSI and Translator.

CHANGING THE NATIVE MODE OF A SPRITE

Suppose you need to create a high resolution sprite. You might begin by selecting mode 20 as the required output mode for ChangeFSI or Translator. For the next step you will need to be able to select individual sprites from your !Sprites file. The easiest way to do this is to load !Sprites into Paint, then click Menu over the required sprite in Paint's sprite file window, select *Save*, and drag the icon of the chosen sprite directly to ChangeFSI or Translator.

The result will be a mode 20 version of your original sprite. You could use this directly - using Paint to save it with the correct sprite name in a file called !Sprites22. But to achieve any improvement in quality, you will need to use Paint to add extra detail to your new sprite.

SCALING A SPRITE

Both packages can be used to scale any sprite independently in the x and y directions. As a test, I scaled down a 300K mode 28 picture by a factor of 2:1 in both x and y directions. Setting the output to mode 28 for high resolution results on both packages gave times of 8.9 seconds for ChangeFSI and 3.3 seconds for Translator (on an ARM 3).

As before, ChangeFSI was both the slowest and the most effective. Fig. 2 shows part of the original image together with the scaled results from the two packages. The ChangeFSI image (top right) shows no noticeable degradation compared to the original - a fact I have noticed on many occasions when using this package - while with Translator you can see a definite loss in quality. This may not be apparent in our illustration here, but in 'real life' at a viewing distance of 2-3 ft from the monitor, red and green dithered pixels can be seen all over the surface of the college wall and elsewhere. This is not to criticise Translator, but merely to point out what excellent results ChangeFSI achieves.

Incredibly, it is possible to improve the quality of the ChangeFSI image even further. By selecting the *Presharpen* option from the *Processing* submenu, you can actually create an image which is sharper and clearer than the (larger) original - and without introducing any graininess. I should add that this magic does not usually work unless you are scaling down in size.

COLOUR FILTERING

While both packages will let you convert colour images to very acceptable mono counterparts (with ChangeFSI again producing slightly less grainy results), Translator lets you completely determine the relative proportions of red, green and blue in the final image through the use of RGB sliders (see fig. 3). This is good fun to experiment with, and you can produce some very effective results - changing the mood of a picture, and so on - especially when used with the *Invert* option (which both packages provide).

More on images next month - but if you wish to experiment in the meantime, the high resolution 'College' image used here can be found on Risc User disc 4:5. There is a picture of Rannoch Moor at the same resolution on the 4:8 disc.

The 80 Column

Our regular round-up of printing matters, compiled by Alan Wrigley.

PRINTING AT DIFFERENT RESOLUTIONS

If you regularly use your printer in more than one resolution (e.g. coarse to see what a document looks like, then fine for the final copy), it is much more of a nuisance under RISC OS 3 to alter the resolution between print jobs. One solution is to create a second printer definition file, based on the original but with just the resolution changed, and load this into the printer manager alongside the original. You can then switch between the two from the printer control window. You could also adopt this method to cater for different paper sizes or any other parameter that you alter regularly.

SIMPLE BACKGROUND PRINTING

David Spencer

A very simple way to reduce the amount of time wasted when printing to a slow printer (for example over a network) is to change the destination to a file and print to that first of all, then change the output back to the printer and drag the file onto the printer manager icon. This will spool the file's contents directly to the printer, but in the background so that you can carry on working.

INACTIVE PRINTERS

In this column two months ago (RISC User 6:4), I described a method of detecting whether the RISC OS 3 printer manager is installed. Even if the manager is there, however, you can't necessarily rely on being able to print - all the printers currently known to the manager may be inactive. What will happen then depends on circumstances; normally your program will just hang indefinitely, waiting in vain for a response from the printer. But if one of the printers has previously been active, the output will be sent to that printer, even if it has now been made inactive - is this yet another bug in the RISC OS 3 printing routines?

There doesn't seem to be a simple way to find out if a printer is active, other than by adopting the somewhat primitive printer on-line detection routine also mentioned in the 6:4 issue. You could use the listing given there (before opening *Printer:*) and then follow it immediately with an error handler which reports "No printer active" if *online%* is FALSE.

REDUCING THE LENGTH OF THE RISC OS 3 PAPER SIZE MENU

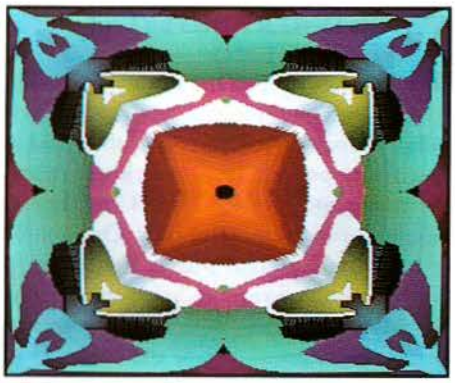
Ben Avison

Many users will have little use for most of the paper sizes on the printer manager's *Paper sizes* menu, but you can only delete sizes you have created yourself. The default sizes which form the bulk of the menu are stored in the files *!Printers.dp.Resources.PaperRO*, *!Printers.lj.Resources.PaperRO* and *!Printers.ps.Resources.PaperRO*. The printer manager always leaves these files untouched, storing any new paper size definitions in *!Printers.PaperRW*.

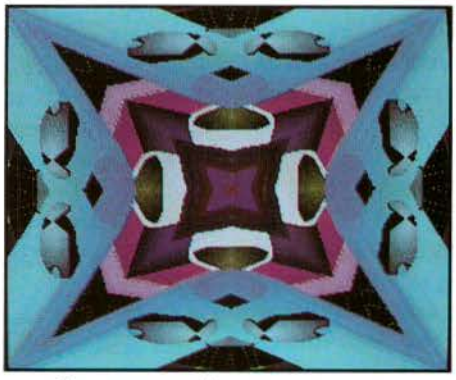
To remove unwanted definitions, first of all identify which default sizes you wish to keep (they will have the word "Generic" in their name). Edit these in the *Paper size* dialogue box simply by adding "X" to the end of the name and clicking on OK. This will create a new size with identical parameters to the old one (apart from the name) but stored in the *PaperRW* file. Now quit the printer manager and delete all three *PaperRO* files (making sure you have backup copies stored elsewhere of course). Finally, load the *PaperRW* file into Edit and remove the "X" from the end of each name. Now when you use the printer manager the menu will only contain the required sizes (including any others you have defined yourself).

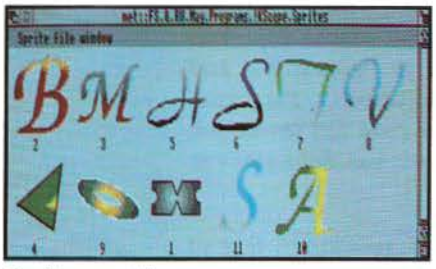
Kaleidosprite

Colin Cassidy presents a program of visual delights.



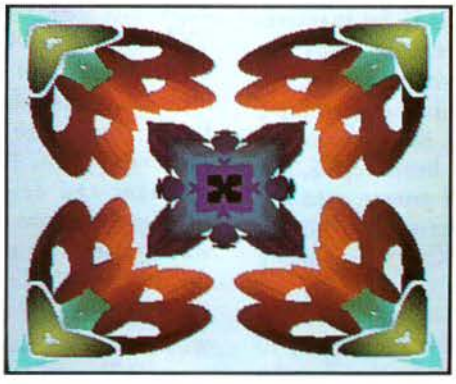
I am sure we all remember those fascinating kaleidoscope toys of our youth with their ever-changing patterns. The program listed here does that and very much more, creating never-ending and fascinating sequences of patterns (generated by dragging masked sprites across the screen and reflecting a portion of the screen eight times). The display is constantly updated, but can be paused at any time by pressing 'P', and stopped completely by pressing and holding Escape. Pressing Escape briefly will start a new sequence of patterns.





Sprites used in demo on the magazine disc

Real kaleidoscopes use the random arrangement of coloured chips of glass to make a pattern. The electronic equivalent is a sprite file which can be created in Paint or an art package, and should contain ten or eleven mode 13 (or mode 15) sprites. These sprites do not have to look like or be called anything in particular, but in general should be colourful and ornate (some coloured outline fonts work well), approximately 100 pixels square and collectively occupying no more than about 160K. They should be created with a mask, all unused pixels being made transparent (specified in the initial dialogue box).

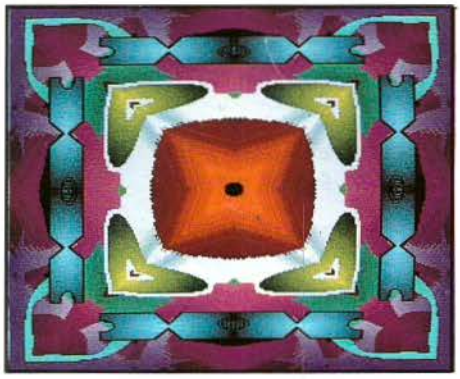


This sprite file should be saved as Sprites in a directory called !KScope, along with !Runimage which is the Basic program listed below (take care with the machine code), !Sprites which is a sprite file containing a suitable mode 12 sprite (34 pixels wide, 17 pixels high and called !kscope) as the

application's icon, and !Run which is an Obey file containing the following:

```
IconSprites <Obey$Dir>.!Sprites
WimpSlot -min 192K -max 192K
Run <Obey$Dir>.!RunImage
```

For a more accurate (but probably less interesting) representation of a kaleidoscope, try removing the REM keyword in line 340.



A full application with ready made sprites is supplied on this month's magazine disc.

```
 10 REM            >!RunImage
 20 REM Program    Kaleidoscope
 30 REM Version    A1.00
 40 REM Author     Colin Cassidy
 50 REM RISC User  May 1993
 60 REM Program    Subject to Copyright
 70 REM            Not Public Domain
 80 :
 90 spd=8
100 MODE15:MODE13
110 OFF
120 DIM code 1000,block &30
130 DIM X(20),Y(20),Dx(20),Dy(20)
140 PROCsprites
150 PROCcode
160 VDU 19,1,24,255,255,255
170 COLOUR 0
180 COLOUR 128+63 TINT 192
190 CLS
200 *FX 112,2
210 CLS
220 GCOL 8,0
230 VDU 24,32;0;640;512;
240 R=RND(-TIME)
250 ON ERROR PROCer
260 *FX 112,2
270 CLS
280 FOR n=1 TO num
290 X(n)=RND(700)-200
300 Y(n)=RND(700)-200
310 NEXT
320 PROCrnd
330 REPEAT
340 REM CLS
350 IF TIME>T+(200*60) PROCrnd
360 FOR n=1 TO num
370 MOVE X(n)*2,Y(n)
380 SYS "OS_SpriteOp",&21C,spr,pnt!((n
-1)*4),,,8
390 X(n)+=Dx(n)
400 Y(n)+=Dy(n)
410 IF X(n)>550 OR X(n)<-250 Dx(n)=-Dx
(n)
420 IF Y(n)>550 OR Y(n)<-250 Dy(n)=-Dy
(n)
430 NEXT
440 CALL code
450 IF INKEY(-56) REPEAT G=GET:UNTIL G
<>80 AND G<>112
460 UNTIL FALSE
470 END
480 :
490 DEF PROCer
500 *FX 112,1
510 IF ERR<>17 PRINT REPORT$" at line
";ERL:END
520 T=TIME
530 REPEAT
540 UNTIL TIME>T+25
550 IF INKEY-113 END
560 ENDPROC
570 :
580 DEF PROCrnd
590 LOCAL n
600 FOR n=1 TO num
610 Dx(n)=(RND(1)-.5)*spd
620 Dy(n)=(RND(1)-.5)*spd
630 T=TIME
640 NEXT
650 ENDPROC
660 :
670 DEF PROCsprites
680 SYS "OS_File",5,"<Obey$Dir>.Sprite
s" TO ,,,,ext%
690 ext%+=16
700 DIM spr ext%
710 !spr=ext%
720 spr!4=0:spr!8=16:spr!12=16
730 SYS "OS_SpriteOp",&10A,spr,"<Obey$
Dir>.Sprites"
740 num=spr!4
750 DIM pnt num*4
760 sp=spr+spr!8
770 FOR n=0 TO num-1
780 pnt!(n*4)=sp
790 sp+=!sp
800 NEXT
810 ENDPROC
820 :
830 DEF PROCcode
840 !block=148:block!4=7
850 block!8=150:block!12=-1
```

```
  860 SYS "OS_ReadVduVariables",block,bl
ock+&10
  870 base=block!&10
  880 size=block!&14
  890 FOR pass=0 TO 1
  900 P%=code
  910 [OPT pass*2
  920 LDR R0,d1:ADD R1,R0,#128
  930 LDR R3,d1+8
  940 MOV R11,#256:MOV R12,R11
  950 ADD R11,R11,#65:ADD R12,R12,#63
  960 LDR R4,d2:LDR R5,d2+4
  970 LDR R6,d2+8:LDR R7,d2+12
  980 LDR R8,d2+16:LDR R9,d2+20
  990 LDR R10,d2+24
 1000 .lp1
 1010 STR R0,d1+4
 1020 STR R4,d3:STR R5,d3+4
 1030 STR R6,d3+8:STR R7,d3+12
 1040 STR R8,d3+16:STR R9,d3+20
 1050 STR R10,d3+24
 1060 .lp2
 1070 LDRB R2,[R0],#1
 1080 STRB R2,[R0,R3]
 1090 STRB R2,[R4],#1
 1100 STRB R2,[R5],#-1
 1110 STRB R2,[R6],#320
 1120 STRB R2,[R7],#320
 1130 STRB R2,[R8],#-320
 1140 STRB R2,[R9],#-320
 1150 STRB R2,[R10],#-1
 1160 CMP R0,R1:BLO lp2
 1170 SUB R1,R1,#320
 1180 LDR R0,d1+4:SUB R0,R0,#320
 1190 ADD R0,R0,#1:STR R0,d1+4
 1200 LDR R4,d3:ADD R4,R4,R11
 1210 LDR R5,d3+4:ADD R5,R5,R12
 1220 LDR R6,d3+8:ADD R6,R6,R11
 1230 LDR R7,d3+12:ADD R7,R7,R12
 1240 LDR R8,d3+16:SUB R8,R8,R12
 1250 LDR R9,d3+20:SUB R9,R9,R11
 1260 LDR R10,d3+24:SUB R10,R10,R11
 1270 CMP R4,R8:BLS lp1
 1280 MOV PC,R14
 1290 .d1
 1300 EQUD base+size*2-288
 1310 EQUD 0:EQUD -size
 1320 .d2
 1330 EQUD base+33:EQUD base+288
 1340 EQUD base+32:EQUD base+288
 1350 EQUD base+size-288
 1360 EQUD base+size-32
 1370 EQUD base+size-33
 1380 .d3
 1390 ]
 1400 FOR n=1 TO 7
 1410 [OPT pass*2:EQUD 0:]
 1420 NEXT
 1430 NEXT
 1440 ENDPROC
```


Network Supervisor

The desktop network manager for Level 3 and Level 4 networks

Network Supervisor has these features

Desktop editor for:
- editing password and user files
- adding, editing and deleting users in bulk
- adding, editing and deleting user profiles in bulk
- automatically inserting !Boot and !ArmBoot files in user areas

Protection:
- from casual interference at the server
- against unwanted messages at stations

Users have:
- access to their own user profiles

Desktop manager for:
- setting station numbers
- listing current users and their priviliges
- listing machines on the network
- sending messages to one or all users
- logging-off one or all users
- setting user free space in K or Mbytes
- setting the server clock

Plus many other useful utilities

Network Supervisor:
- *manages mixed networks of BBC and Archimedes*
- *runs on Econet or Ethernet (AUN)*
- *operates in a 1 Mbyte Archimedes*
- *runs in the desktop with RISC OS 2 and 3*
- *runs on Acorn Level 3 or 4 and SJ MDFS*
- *supports multiple file servers*

Single network licence - £50 (+£2 p&p) + VAT

AU Enterprises Ltd, 126 Great North Road, Hatfield, Herts AL9 5JZ
Tel: (0707) 266714 Fax: (0707) 273684

The Advisory Unit
Computers in Education

S-Base: A Programmable Database

Alan Highet looks at a major advance in database design from Longman Logotron

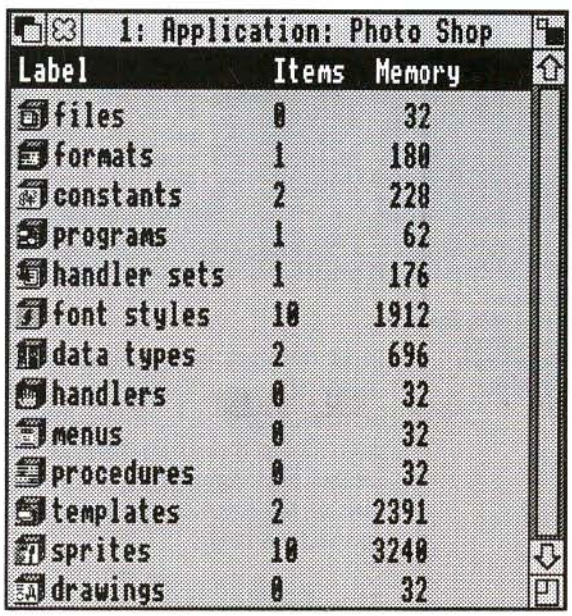
Longman Logotron has released a much-needed programmable database for the Archimedes in three versions. *S-Base Personal* allows the construction of applications for your own use, *S-Base Developer* (the version used for this review) allows the creation of run time applications for sale or distribution, and *S-Base Developer Plus* lets you create stand-alone packages for multi-user systems.

S-Base comes on two discs, one holding the main application which installs in the usual way, and the other with a set of tutorial programs along with a fully working example database. There are two manuals, housed in a sturdy box, and these give some clues to the complexity of the program. There is a 240 page tutorial, and an equally lengthy reference manual. The program requires 2Mb or more to run, and will work happily from floppy disc, although a hard disc will be required to house any sizeable amount of data, and RISC OS 3 is recommended.

Unlike many applications for the Acorn range, the tutorial book needs careful studying before any attempt is made to use the keyboard. This is because there is no database program built in, and clicking on the colourful icon on the icon bar brings up only a save box to enable you to save your yet-to-be-created database. Once saved to disc, a double click on the application icon opens a RISC OS style Filer window (figure 1) with a bewildering array of tiny icons. Like an ordinary Filer window, the icons can be displayed in large or small format, and this imitation of a Filer window is copied throughout, making anyone familiar with RISC OS feel at home straight away. This enables you to copy or move resources within the application or even between databases just like any normal RISC OS Filer window.

Don't think that writing your own database application will be an easy task, but S-Base takes as much pain out of the process as possible without sacrificing versatility or speed. Anyone who is used to programming in Basic will not have too much trouble, certainly to start with, although the language (S) is more structured than Basic and has a certain similarity to C.

The tutorial takes you through the construction of a simple flat-file address database, introducing you to new ideas and then asking you to create something similar to make sure you understand what has just been covered.

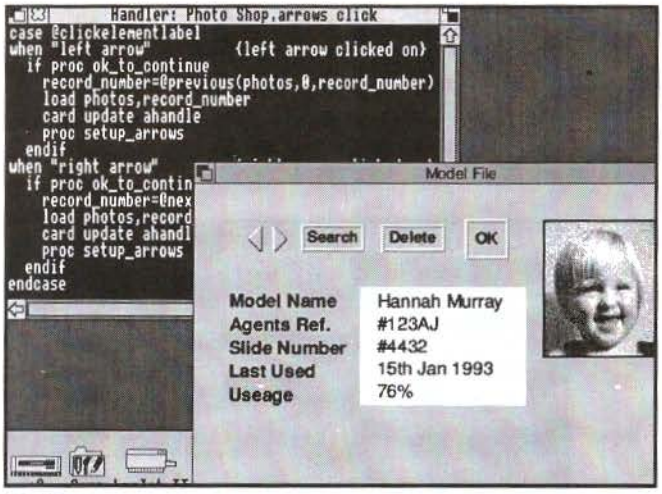


S-Base resources

SIMPLE DATABASE GENERATION

In simple terms, you start by creating a card template which is identical to a standard RISC OS window, and in fact the editor can be used to create ordinary window templates. The editor has a Draw type toolbox, and the size, position and characteristics of the window can be

designed here and later changed if needed. A default window style is provided, and any previously defined windows can be called up and altered to create a new window. After picking the style, the window is actually opened and you can add action icons, which in the case of the tutorial could be *add, save, cancel* and *find*, but there are also radio icons, pop ups, left and right arrows, writable icons or user defined icons such as small pictorial sprites. Designing the template separately from the format means you can use the same template for many different cards, saving time and encouraging uniformity within a database.



S-Base program and resulting database display

Next the data types are selected from a choice of integer, floating point, text, date, or time, together with the format of the data. Using these data types a file can be created with appropriate fields and, in the case of the tutorial, these would be name and address fields.

As well as data types you can define text styles as with DTP documents. These are used throughout for the display of prompts, fields, headers, and footers, and these help to generate a particular style for your database.

The format of the display has then to be created, and all the fields may be inserted manually, but a much easier way is to use the automatic format generator. Taking the field information and the window template already designed the generator will automatically create the format and open a window showing the fields already inserted. As with everything else, these fields can be altered now or at any time in the future. Sprites can also be added at this point to personalise the display.

PROGRAM GENERATION

Next comes the trickier business of program writing. You now have to tell the program what to do when each icon is pressed. Firstly a *handler set* is added to the icon which tells the program to expect a keypress or a mouse click for instance. Then a *handler* is written for that set. In the case of the left and right arrows the handler would increment or decrement the card counter and redisplay the card, checking that the counter had not reached zero or the last record. Because of the inbuilt commands available to read record details in a file, the code required for each action is relatively small. Furthermore, as each handler is stored separately, editing is not a daunting task. A double click on a handler in its Filer window displays the program in an edit style window making alterations simple.

To set up a flat-file database, similar to the tutorial address database, is relatively easy, and is helped immensely by the multi-tasking windows, which let you run the program at any time while still letting you have access to the code. Another great benefit is the ability to save the program in memory and run it without altering the version saved on disc which means that if you make a mistake you can reload the program and start again.

The program lets you develop applications at a leisurely pace, and you soon have a window displayed on screen with familiar RISC OS icons which will actually do something. S-Base is reasonably user friendly, and when an error occurs, and they will frequently to start with, it loads the relevant line of code into an appropriate editor, highlights it and explains in a large

error window where the error occurred and hopefully why. Coding is aided by command templates which can be entered at the cursor, ensuring the correct syntax is followed. There are over 300 commands and functions, including a large range of maths functions. Some of these are similar or the same as standard Basic commands, but there are quite a few specific commands which are extremely powerful such as 'select' which, with attached arguments, will search a database on a specified index for a given value with optional filters and range limiters, and return the found record to a procedure for processing.

OTHER FEATURES

It would be pointless buying S-Base if all you wanted was a flat-file database; S-Base is capable of much more than that. As well as letting you create cards you can also create reports and tables. Reports, as the name suggests, are to show selective information gleaned from the database, but because the report can be laid out like a DTP document it allows much more than simple reporting. Integral mailmerge is possible, allowing selected addresses to be used to mail information. Tables let you see your information in a similar fashion to cards but unlike reports you can edit the data on screen.

In figure 2 I have started to write an application to store slides for sale. This part of the application is a simple database with basic information and a sprite of the slide (Kodak's Photo CD should improve the quality of this part). The advantage of S-Base is that in another file I have all the sales information from the accounts database which is being used to generate the usage figures in this card. Another part of the program takes care of the paperwork in each transaction which updates the accounts package and so on. S-Base gives you the advantage of writing and testing one part your application before adding the next.

S-Base only imports and exports in its own data type, but allows binary and ASCII import and export giving you the option of writing your own custom routines for this purpose. Sprites are catered for as well as Replay files, although the manual does not cover the import and display of these in any detail. There are built-in drawing commands which I assume are to help in the layout of reports and tables, but with a little effort I could see them being used for live charts and graphs.

To allow for back up of the application, S-Base can generate a text archive. This does not back up data, but allows an entire application to be rebuilt. When you have finished writing your application, you can compile it (with the appropriate version of S-Base) into a royalty-free runtime version which may be distributed for commercial gain. This alone makes the package worth more than the asking price.

CONCLUSION

I found the tutorial rather confusing, and had to read it many times before achieving even simple things, but I was helped by examining the demos supplied and by reading the reference book which is superb, with each command listed along with an example and a good description.

Version 1 of S-Base was not totally stable, but only locked up my machine once. In fact, S-Base normally warned me of any impending disaster, letting me save my application before reloading S-Base.

I must stress that you will not achieve a professional database without a lot of effort, but I'm sure we will see a lot of stand alone databases appearing soon thanks to this much needed software.

Product *S-Base Developer Supplier*
Longman Logotron
124 Cambridge Science Park,
Milton Road,
Cambridge CB4 4ZS.
Tel. 0223 425558
Fax 0223 425349

Price *£233.82*
S-Base Personal £116.33
S-Base Developer Plus £351.33
All prices quoted include VAT.

Archimedes Hints & Tips Compendium

Over 1,500 Hints and Tips about various aspects of using the complete Archimedes range of computers.

Over 200,000 words on disc for ease and speed of reference. Available in Edit format on 2 x 800Kb discs. (Paper copies, including diagrams, available as an extra.)

Price: £13 inclusive (or £11 on 1.6Mb disc)

Send a cheque for £13 (or £11) to: Norwich Computer Services
96a Vauxhall Street
Norwich NR2 2SD

Phone 0603–766592 *Fax 0603–764011*

If YOU are thinking seriously about

STATISTICS

Then think **"FIRST"**

NOW MULTI-TASKING

1st and 1st JR have enhanced specifications. For example:

RISC OS 2 and 3 compliant. Structured Menu System. "Spreadsheet" data entry. Simple access to UNMATCHED STATISTICAL FACILITIES. Drawfile output of Graphics. Ultra-easy import and export of CSV files giving smooth data interfaces to other software. Automatic, context sensitive Manual. Mouse driven with optional keyboard shortcuts.

Statistical content of 1stJR is highly relevant to Educational requirements. Upgrade paths from single tasking versions are available.

Serious Statistical Software
Lynwood, Benty Heath Lane, Willaston,
South Wirral L64 1SD Tel. 051-327 4268

Multiple Desktop Boots for RISC OS 3

Richard Hallas gives RISC OS 3 a (multiple) boot.

RISC OS 3's built-in boot facilities have been well publicised, and are a welcome addition to the operating system. Similar facilities were available in the previous incarnation of RISC OS, but they were not so accessible or easy to use. However, when it comes down to how the boot system works, there is nothing 'magic' about it, and indeed, many users will want to customise their boot files, tailoring them to do more specific things than are available through the automated system provided by RISC OS.

The provision of a single easily set up boot file is all very well, but what if you use your computer for several specific tasks, and would like to have a different start-ups depending on the work you wish to do? Perhaps you have configured !Printers to auto-start, but find that you don't always want to use it. Maybe you have more than one font directory: sometimes you will want all fonts, at other times just the basic set.

What is needed is a system of alternative boot files, from which one can be selected upon reset or power-up. This is what this article is about. I personally have various boot-up files, including one for Impression, another for Ovation, one for PMS (music typesetting) and another non-specific one. I can select between these simply by holding down a key when the computer beeps at power-on.

HOW TO DO IT

The very first thing you need to do is to start up your system from scratch, and set it up for the absolutely basic minimum of software you need. This will probably just mean letting it know where !System and !Scrap are stored (by opening the directory display where they are located), initialising your basic set of fonts, and letting RISC OS know the whereabouts of your more frequently-used applications such as Ovation, DeskEdit, PipeDream etc.; all those applications, in fact, which will load themselves when you double-click on their file icons.

Since, for the present purposes, you should avoid letting the filer see applications which are extraneous to your needs, open all directories with Ctrl held down so that application !Boot files are not executed. For those applications which you do want the system to know about, you should run them and quit them again. This slightly tedious process will help in the end, because the system will not waste time and memory in booting software it doesn't need, and your basic boot file will be tidier. An alternative method is to open directories as normal, and then edit out unwanted application references.

Do not, at this stage, leave any programs running unless you are certain you always want them running, no matter what start-up sequence you are using. Similarly, if you have any of the ROM applications (such as Alarm) set up to run automatically, but you do not want them loaded under every conceivable circumstance, you should configure them not to appear automatically. The only exception to this rule is for applications whose default set-up is not to your liking, and which save their set-ups in boot files (e.g. Draw, Paint, Edit and Magnifier). You should run these applications, set them to appear as you want them (e.g. grid on in Draw), and after saving the boot file delete manually the 'Run' lines which refer to them.

Having set up your computer's basic configuration in this way, the next thing to do is to create an application directory called !Boot in the root ($) directory of your hard disc. All references to creating or saving files from now on in this article will imply saving them within this !Boot directory.

At this point, use the Task Manager's *Desktop boot* menu option to save the boot file (into the new !Boot directory) under the name *!DeskBoot*. Remember to create a !Sprites file with a suitable sprite (called *!boot*) in it for your !Boot application directory. You may like to modify the boot file icon (*file_fea* as provided in the SetIcons application directory (in *22Sprites* or *23Sprites*) or in the Resources.Wimp.Sprites file in the Resource filing system).

Now create a !Run file of type Obey as follows:

```
Set Boot$Dir <Obey$Dir>
IconSprites <Boot$Dir>.!Sprites
If "<Wimp$State>" <> "commands" then
error 0 This is a resource application
for use when booting up the system. It
cannot be run alone.
Desktop -file <Boot$Dir>.!DeskBoot
```

The third line is important: it means that you cannot upset your system by accidentally double-clicking on the !Boot application from the Desktop. If you do, all that will happen is that you get a message, rather than the computer trying to load up software all over again.

The result so far is that you have an application which will perform a basic boot-up for your system, and which if double-clicked will show a message. At this stage there is little improvement over a single boot file. However, the idea is that now, having performed the basic software installation, the computer can branch off and execute another file, determined by your pressing a key on the keyboard. We need a short Basic program to handle this. Save this under the filename *OneKeyBoot*:

```
A=INKEY(0)
IF (A>=97) AND (A<=122) THEN A=A-32
IF (A>=65) AND (A<=90) THEN A$=CHR$(A)
ELSE A$=""
A$=FNensureFile(A$)
IF A$<>"" THEN
  *Backdrop <Boot$Dir>.RubberMat -Tile
  OSCLI("Obey <Boot$Dir>.Boot-up"+A$)
ELSE
  *Backdrop <Boot$Dir>.AcornPic -Tile
  OSCLI("Obey <Boot$Dir>.Boot-up")
ENDIF
END
:
DEF FNensureFile(A$)
LOCAL ERROR
ON ERROR LOCAL =""
SYS "OS_FSControl",28,"<Boot$Dir>.Boot-
up"+A$ TO ,,len
=A$
```

This reads the key pressed from the keyboard input buffer (letters A-Z only), and uses this to determine whether a default or specific boot-up has been chosen. The corresponding boot-up file is then executed.

If you didn't press a key, or there is no file for the key you pressed, a standard boot file will be launched; otherwise, the file you requested will be run. The *Backdrop lines are optional, and can be configured however you want; at the moment, a 'rubber mat' style backdrop is loaded if you press a key, and a repeating Acorn logo if you don't. You might like to use a proper picture instead. You should use a 16-colour sprite in preference to a 256-colour one. I have found that using ChangeFSI to convert a 256-colour full-screen picture to 16 colours generally gives reasonable results and saves time when loading. A good picture to try is the Rannoch Moor sprite provided on the RISC User disc for Volume 4:8, which converts quite well.

Having saved the Basic program, it is necessary to integrate it into the boot sequence. It needs to be called from the !DeskBoot file. You might like to edit this file to start off with, and remove any extraneous lines which you don't need, or add some which you do. You should remove any 'Filer_OpenDir', 'Run' or 'WimpMode' lines, because these are not wanted at this stage. If you don't use the standard options in Draw, Paint etc., you might like to add the lines to set them up at this point if they are not present already. Instructions for setting options variables are given in the RISC OS 3 Applications Guide; for example, the Draw options are detailed on page 73-74. Your !DeskBoot file should consist mainly of 'Filer_Boot' lines, a few

'Set' and 'ChangeDynamicArea' lines and probably a few others.

Assuming you have the !Deskboot file as you want it, you should insert as the last line:

```
Run <Boot$Dir>.OneKeyBoot
```

Make sure that at least one blank line exists at the end of the file, or it may not work properly. All that remains now is the work involved in setting up the various alternative start-ups. At the very least you need a text file called *Boot-up*. This is the default file to be executed if no key (or an invalid key) is pressed when booting. In addition to this, you can add as many other files as you need alternative start-ups: each extra file must have the name *Boot-up* plus one extra letter (*Boot-upA, Boot-upP* etc.). It is probably best to give these the file type *Text* so they can be edited easily.

Your text Boot-up files will consist mainly of lists of applications to run. Open a new text file window in Edit, and with the Shift key held down, drag into it from a Filer window the applications you want that file to run, in the order they are to be run. Edit will insert the full pathnames. Once you have entered all the applications you want, highlight them as a block and use Edit's *Select=>Indent* menu to prefix them all with 'Filer_Run ' (not forgetting the trailing space character). Now all that is left to do is to insert a 'WimpMode' command for the screen mode you want to use, and 'Filer_OpenDir' lines for the directories you want open. Note that you can actually specify the size and position of directory windows by following the advice given on page 180 of the RISC OS 3 User Guide.

Certain applications, such as Chars, do not install an icon on the icon bar when you run them. You can still get them onto the icon bar: instead of using 'Filer_Run' as the prefix, use 'AddTinyDir ' (again, not forgetting the space at the end). As with the !DeskBoot file, you should ensure that all your 'Boot-up...' files end with at least one blank line, or the last command in the file may not work.

A couple of other points remain. You may sometimes wish to have a RAM disc configured. This is easily achieved by adding the line:

```
ChangeDynamicArea -RamFsSize 128K
(or whatever size you want)
```

to one of the Boot-up files. You may also like to change the keyboard status depending on the start-up: for example, I generally have ShiftCaps configured, but for word processing I like to have Caps Lock off, and this can be achieved in individual Boot-up files by adding a couple of *FX commands:

```
FX 202,48
FX 118
```

which respectively alter the status of the keyboard to lower case, and reflect the change in the keyboard LEDs. Once you have set up your various alternative boot files, your work is complete. The only thing left to do is to make sure that the computer is set up to boot up from the correct drive by entering the following at the command line or in a task window (the first two lines will depend on your hardware):

```
Configure FileSystem SCSI (or ADFS etc.)
Configure SCSIDrive 4 (or just Drive
    4 for ADFS)
Configure Boot
Opt 4 2
```

From now on, when you turn on or reset the machine it will go through the default boot-up sequence unless you press a key at the start, in which case it will try to execute a file whose suffix is the letter you pressed. Note that it isn't necessary to hold the key down: as long as you press it as soon as the computer gives its normal start-up beep, the key will be inserted into the keyboard buffer and the correct file executed. Make sure that you don't hold down the letter R as you switch on the power, or you will lose all your CMOS RAM settings! The boot sequence has finished once all the filer windows appear, although the Desktop itself will have appeared some time before that happens.

A full working example Boot application is included on the magazine disc to show how it all works. You should be able to tailor this to your own Desktop requirements.

Professional Scorewriting

Richard Hallas reviews the Professional Music Scribe (PMS).

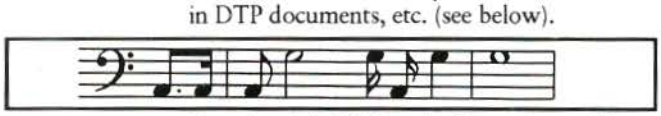
OVERVIEW

PMS is a professional quality music typesetting package which has been around for several years on the Archimedes. It has recently been completely rewritten and turned into a fully multi-tasking Desktop application. It is a highly complex piece of software which takes input from textual script files rather than allowing the user to drag notes etc. around in a window. Once files have been processed, the music is displayed in a window and can be printed out or saved as a Draw file. Playback facilities are also included for proof-hearing purposes.

THE PACKAGE

PMS consists of a single disc and a somewhat daunting 200 page manual. A skim through the pages gives a good indication of the complexity of PMS, for which a clear and well-written manual is essential. Happily, the PMS manual is both well-organised and highly readable. What's more, it contains a superb index. Many of the initial sections take the form of a tutorial which, although not particularly extensive, is very helpful in explaining the fundamentals of the system.

PMS comes in PostScript and non-PostScript compatible versions, each available for commercial and 'home' use. The PostScript version contains PostScript fonts and a second application for transmitting PostScript files to printers. All versions of PMS come with a pair of outline fonts which can be used to enter rhythmical illustrations in DTP documents, etc. (see below).



Once loaded, PMS waits for an input file to be dragged to it, and then shows a small bar-graph window indicating its progress. Once processed, the first page of the music is displayed for checking. Anti-aliasing is used for appropriate parts of the display, so the music looks better than if it were just viewed in Draw. A zoom box is provided for up to a 16x zoom, and there are various keyboard short-cuts for moving between pages. Detailed information about the score can be called up, and there are various options which allow you to enter transpositions, stave ranges and other formatting facilities. This makes for easy part extraction, although you must re-process the score before the values you have entered have any effect.

THE INPUT LANGUAGE

When using PMS you spend most of your time in a text editor, such as Edit or DeskEdit, because PMS itself is only used when checking your input files and printing out the final work. The input language is in itself quite simple and basically easy to learn, providing straightforward commands and conditions. However, there are so many commands, with so many parameters, that you need to have the manual close by at all times.

PMS files contain basically two sections: heading information and the music data itself. In fact, several movements can be incorporated into a single input file if necessary, and each movement will have its own associated heading and music data. The heading section contains both formatting and musical style information, and printed information such as title and composer.

The initial key and time signatures are usually given in the heading section, but they can be overridden in individual staves, and of course clefs and transpositions are set individually. Staves can also be given labels for the start of the piece, along with optional abbreviations for succeeding lines (e.g. "Viola" and "Va").

The system for note representation is very straightforward. A lower case letter represents a crotchet or smaller value, an upper case letter a minim or larger. To these are added various extensions: e.g. a minus sign for a quaver, an equals sign for a semiquaver, # for a sharp (## for a

double-sharp), and $ and % respectively to represent flat and natural.

As well as single lines of music, you can produce chords, and notes can also be made to reach onto the stave above or below, a convention that is frequently seen in piano music.

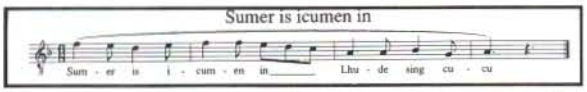
Text can be added to music in a wide variety of ways, either as some form of marking or as underlay text (words for vocal music). In both cases the text is always attached to a note and will flow along with the music, although precise positioning in relation to the note (including centring between staves) is also possible.

To provide a simple example:

```
Heading "Sumer is icumen in" Key F Time
6/8

[Stave 1] [Trebletenor 1]
"Sum-er is i-cum-en in=="/ul
[Slur] f' e'- d' e'- | f' f'-; e'-d'-c'- |
"Lhu-de sing cu-cu"/ul
a a- b g- | a. [Endslur] r. |
[Endstave]
```

would produce:



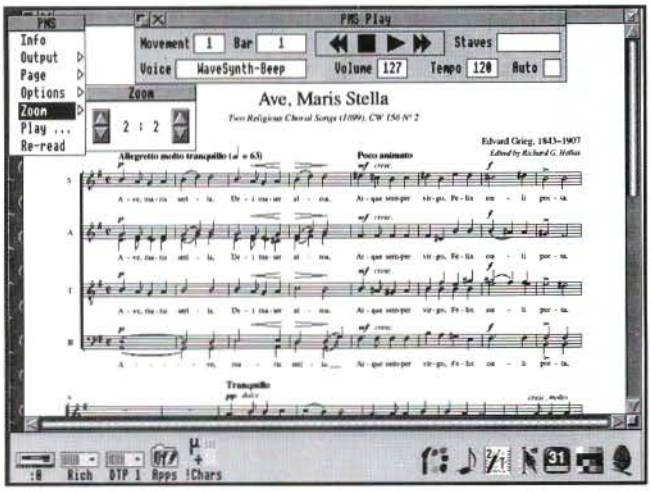
Music draw file

CONCLUSIONS

There are a few things PMS will currently not do easily. For example, symbols to provide guitar chords are available in the music font, but there is no direct means of printing them. Similarly, markings such as '*cresc.* . .' with a variable number of dots must be dealt with manually, which can be a nuisance.

The other criticism that could be levelled at PMS is that it is not possible to drag the notes around in the window. However, I am convinced that the text entry system is the more flexible, faster alternative, though it certainly takes a bit of learning. Once mastered, it is very much quicker to type in note names than to drag notes around with the mouse.

While PMS is the only professional music typesetting package on the Archimedes at present, it is also one of the most flexible systems I have seen on any platform. However, it is a fairly complex system to use: it is certainly not something for a casual user; neither is it for someone who wants to be able to both play music on the computer and print it out to a high quality. The playback facility serves its purpose, but is otherwise rudimentary: PMS is a serious music publishing tool which does not claim to be anything else. As a publishing system it is extraordinarily flexible, and comes with the highest possible recommendation.



A musical score generated by PMS

Product *PMS*
Supplier *Philip Hazel,*
33 Metcalfe Road,
Cambridge CB4 2DB.
Tel. (0223) 65518
Prices *Non-PostScript version: £175*
PostScript version: £250
Commercial non-PostScript: £350
Commercial PostScript: £500
Upgrade from version 1 to 2: £50

NOW! POEM 500 CNC SEWING MACHINE + ARC EMBROIDERY

The POEM 500 CNC embroidery machine, combined with TechSoft's Arc Embroidery software, offers a whole new sewing experience for students.

POEM 500

Unlike conventional machines, POEM has been designed from scratch to sit beside a computer. It is simplicity itself to operate, no buttons to press or settings to adjust, everything is controlled automatically. Just load the thread and the material, and go!

Arc Embroidery

With years of experience of designing CNC systems for schools, TechSoft have designed Arc Embroidery to have comprehensive features, while being very simple to use. Either a Sprite or Draw file may be loaded, scaled and positioned. Then, built in or user defined styles (ribbed, zigzag, satin stitch, etc.,) may be assigned to the different colours. Our unique stitching algorithms ensure unrivalled quality of output.

Technical: *Max stitching area 90 x 90mm : Max speed 300 stitches per min : RS232 interface : Supplied with large sewing frame, small frame available as an option : Sews on a wide range of materials : Optional thread stand for large bobbins available : 1 year parts and labour warranty.*

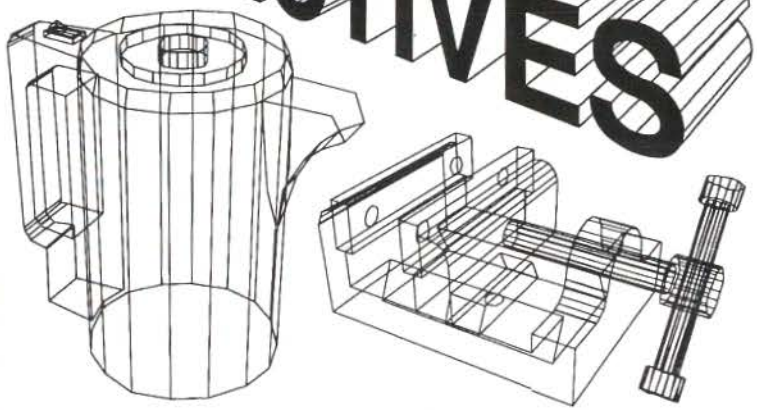
POEM 500 + Arc Embroidery (inc. site licence) + lead - £699 + £12.50 p&p +VAT

TECHSOFT UK Ltd., Old School Lane, Erryrys, Mold, Clwyd, CH7 4DA Tel: 082 43 318 Fax : 082 43 564

CNC SEWING FOR ARCHIMEDES

PERSPECTIVES

WITH STEREO 3D VIEWER!



Perspectives provides a simple means to interactively explore the concepts of 3D design. The drawing screen shows three orthographic (1st or 3rd angle projection), and a pictorial window. The pictorial view may be in perspective, isometric, or oblique (the perspective view can also be rotated/ zoomed to any view point). Drawing takes place in any orthographic window. A wide range of drawing and transformation tools are available. All views are active, allowing real time generation of 3D objects. A special viewing mode allows rotation of objects in full STEREO 3D, for a spectacular aid to visualisation. Output of all, or any individual view, is via a RISC OS printer driver, an HPGL compatible plotter, or as a Draw file.

Perspectives runs on any Archimedes. Single Copy £45 + VAT
A colour monitor is required for stereo. Site Licence £75 + VAT

TECHSOFT UK Ltd., Old School Lane, Erryrys, Mold, Clwyd, CH7 4DA Tel: 082 43 318 Fax : 082 43 564

3D CAD FOR THE ARCHIMEDES

Wordz of Wizdom

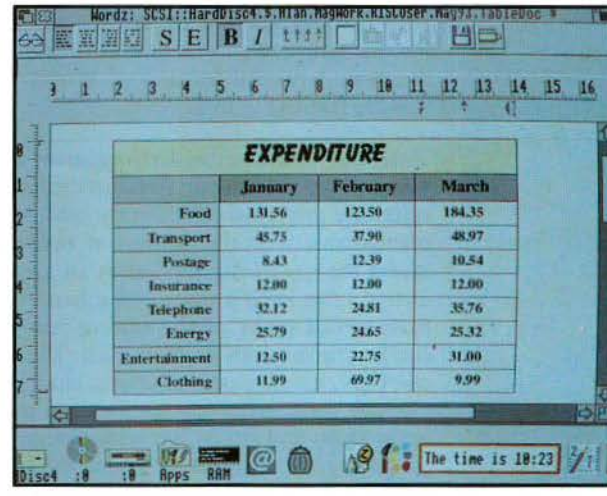
Alan Wrigley reviewz Colton Software's new word processor.

The word processor market is becoming active again. Over the years we have seen ArcWriter, 1st Word Plus, Pipedream, EasiWriter, Pendown, Easiword and Protext to mention but a few. Now in the space of a couple of months a new crop has arrived: Acorn's Advance, Minerva's PrimeWord, and Wordz from Colton.

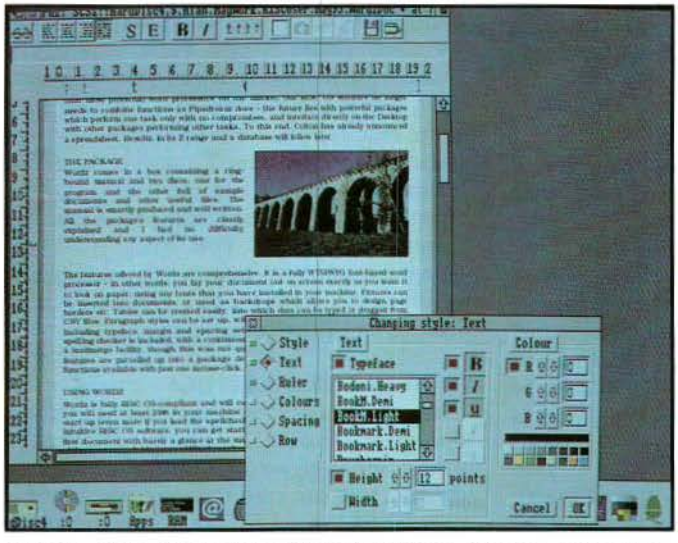
Wordz is clearly a forward-looking product. Colton's Pipedream is one of the best-selling (and most powerful) word processors on the market, but RISC OS software no longer needs to combine functions as Pipedream does - the future lies with powerful packages which perform one task only with no compromises, and interface directly on the Desktop with other packages performing other tasks. To this end, Colton has already announced a spreadsheet, Resultz, in its Z range, and a database will follow later.

THE PACKAGE

Wordz comes in a box containing a ring-bound manual and two discs: one for the program and one full of sample documents and other useful files. The manual is smartly produced and well written. All the package's features are clearly explained and I had no difficulty understanding any aspect of its use.



Creating tables with Wordz is very easy



A typical Wordz document which incorporates a picture. The button bar can be seen at the top, and a style dialogue box is open below

The features offered by Wordz are comprehensive. It is a fully WYSIWYG font-based word processor - in other words, you lay your document out on screen exactly as you want it to look on paper, using any fonts that are installed in your machine. Pictures can be inserted into documents, or used as backdrops for page borders etc. Tables can be created easily, into which data can be typed or dragged from CSV files. Paragraph styles can be set up, with full control over every aspect of the style including typeface, margin settings, colours, justification etc. A spelling checker is included, with a continuous check option if required, and there is also a mailmerge facility, though this was not quite ready in time for this review. All these features are parcelled up into a package designed for

ease of use, with many editing functions available with just one mouse click.

USING WORDZ

Wordz is fully RISC OS-compliant and will run on RISC OS 2 and RISC OS 3. You will need at least 2Mb in your machine since Wordz swallows around 750K just to start up (even more if you load the spellcheck dictionary). Like any well-written and intuitive RISC OS software, you can get started almost straight away and produce your first document with barely a glance at the manual, though you will of course miss the more powerful features of Wordz until you are familiar with it.

Two features are particularly apparent when you open a document window: tabs and rulers are displayed prominently (and can be manipulated with the greatest of ease); and across the top of the window is an array of pictographic icons known as the button bar, from which many of the editing functions can be selected with a simple click. Thus you can copy, cut or paste selections, change the viewing scale, select the justification mode, apply styles and effects, set tabs, save to disc or print, all without recourse to either keyboard or menus (though keyboard shortcuts are available for many of the functions as well). Having done a lot of document editing with other software I can assure you that this is a most welcome feature and greatly improves productivity.

STYLES AND EFFECTS

You may be familiar with the concept of paragraph styles. These are sets of attributes (typeface, size, colour, justification etc.) which can be defined by the user and applied to specified areas of text. Many different styles can be defined in a single document, and the advantage of using styles is that any future changes you make to the definition will automatically be reflected in all text to which that style has been applied.

Wordz offers a very comprehensive implementation of styles, which can be applied, defined or altered using an icon on the button bar. Not only can they be applied to complete paragraphs, but also to any section of text, however small. What is more, you can apply more than one style to the same area of text. This gives you the flexibility to define, say, styles to describe the typeface and size, and other styles to define text colours. You would then be able to highlight text in an alternative colour regardless of its original style, simply by applying the appropriate colour style on top.

To set up styles for future use, template files can be saved (which are nothing to do with Wimp templates). These can include styles, headings etc. A nice feature is that Wordz stores all template files in a special place, and adds them to the list of templates known to the application when it is installed. When you click on the icon bar to open a new document, you are offered a choice of all the known templates as a basis for your document.

If you just want to alter the attributes of an area of text without using a style, you can apply an effect. This is also done from the button bar, and all the style attributes can also be used as effects. Two of the most widely used effects are bold and italic, and these have button bar icons of their own. To italicise a word, just double-click on it to select it and then click on the italic button.

BUTTON BAR

The other facilities on the button bar are just as comprehensive and user-friendly. You can view the document at any scale, and have multiple views of the same document, at different scales if you want. The usual choices for justification are available: left, right, centre and full. To set a tab, just click at the required place on the ruler, or double-click to remove one. To move the tabs, margins, indents or outdents, just drag them along the ruler. A status line shows you the exact position as you drag it. Each paragraph can have its own tab, margin and justification settings, and alterations are effected immediately on the screen.

TABLES AND GRAPHICS

You can create a table anywhere in your document, choosing the number of columns and rows you want. Once the table is created, you can type data directly into the cells or drag in a CSV file. The cells can be manipulated with just as much ease as plain text - tables have their own style, which you can edit just as with text; cells can be resized both horizontally and vertically by dragging the margins around; gridlines can be displayed (solid or dotted) or left blank, and so on. A useful feature is automatic

resizing. This enables you to set the width or height automatically to fit the longest item in that column or row.

Draw or sprite files can be dragged into any document, and repositioned anywhere on the page. The picture can easily be resized, with or without altering the aspect ratio, just by dragging the appropriate corner around. Pictures can be in the foreground or the background; the latter means that any text which overlays the picture will be visible. Unlike a DTP package, text does not flow around a picture, so you have to use margin settings to reposition text if you don't want it obscured or overlaid.

Normally a picture will be positioned relative to the text above it; in other words, if lines are inserted or deleted, the picture will move up or down the page. This is not very convenient if you want to position a picture in a specific place, perhaps to use as part of a design for business stationery, for example. To cater for this, Wordz allows you to specify that a picture is to be used as a backdrop, and it will then remain immobile on the page regardless of any text around it.

Another useful feature of Wordz is that pictures can either be embedded in the document (and filed with it when it is saved) or referenced. In the latter case, only a reference to the location of the original picture file is stored with the Wordz document. Provided you are not likely to transfer the document to a different computer, this can save a considerable amount of disc space (and ensures that the latest version of the picture is always used).

PRINTING

Printing documents is straightforward, but extra facilities are available if you need them. In particular, there is a useful pamphlet option, which enables you to produce folded A5 pamphlets by printing all the pages in the correct place (for example 1 next to 8, 2 next to 7 etc.). There is also a label-printing option to print addresses from CSV files.

Dot-matrix users will want to know if there is provision for printing in text mode. This is a particularly difficult problem for a font-based application, since the formatting of the text in a document depends entirely on the typefaces and sizes chosen. Text-mode printing simply can't reproduce a font-based document accurately - the best you can do is print the text as it comes and ignore the layout. Wordz copes with this by providing a template specifically for text-mode printing. You can only use 12-point Corpus and you can't include pictures or tables, but for quick letters which don't need any bells and whistles this seems to be an adequate solution. It does mean, though, that if you want a draft printout of more elaborate documents, you must transfer the text into a text-mode template first.

CONCLUSIONS

There are many features of Wordz that I don't have space to cover. The overall impression is of a well thought-out piece of software, geared to the needs and the convenience of the user. Wordz sets such high standards for user-friendliness that most of the criticisms I had were entirely due to my expectation that everything would be just as simple. It have to say, though, that the package is clearly aimed at the general market and lacks truly professional word processing features such as indexing facilities, footnotes, two-column text and even a dynamic display of the current page number (at present the page number is only displayed on the status line when you click to position the caret - not very convenient when you are scrolling quickly through a long document looking for a particular page). Perhaps it is fair to say that Wordz is closer to a page-based (as opposed to frame-based) DTP package than to a professional word processor.

My initial thoughts were that if you have a DTP package you don't need a word processor as well. The more I use Wordz, however, the more it delights me with its powerful features and genuine ease of use. For straightforward documents that don't need the DTP treatment, Wordz is worth having in its own right if you can justify the (not insignificant) cost. And when Resultz and the promised database appear, with hot links which allow data to be dynamically updated between applications, the family as a whole will surely represent the state of the art in RISC OS business software.

Product	*Wordz*
Supplier	*Colton Software* *2 Signet Court, Swanns Road,* *Cambridge CB5 8LA.* *tel. 0223 311881*
Price	*£116.32 inc. VAT*

Education: Developing Picture Processing

Chris Drage looks this month at graphics in the secondary school classroom.

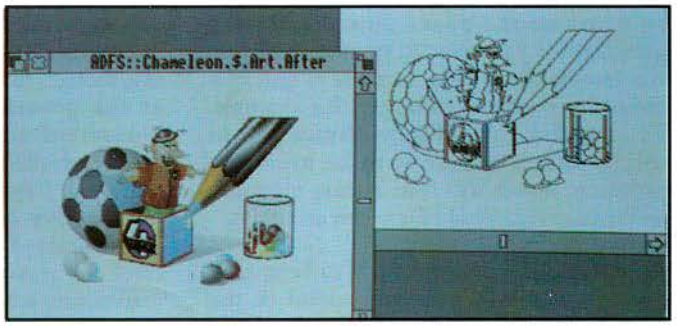
At the primary level the child is 'picture processing' with basic computer tools, involving the simple drawing of shapes, and the filling and manipulation of images. These are the building-blocks of the more advanced techniques that are available in graphic art used at the secondary level. Packages for secondary school pupils roughly divide into art, design and image processing. Art packages tend to be free-form, where the user is not generally bound by drawing rules but is free to express him/herself through the medium of a mouse, trackerball or other input device.

ArtWorks2

At this level the design process becomes more important as children begin to use the computer increasingly as a design tool. Similarly, their work frequently has a focus; the images they create are for a specific purpose e.g. project work, school newspaper, wall/foyer display, multimedia presentations etc. By Key Stage 4 some pupils should be using a variety of supporting software like *Chameleon* and animation software (e.g. *Nootpad* - 4Mation, *Animator* - Iota) which further extend their ability to manipulate images.

CHAMELEON

Chameleon allows the colours in Draw files to be easily edited and altered. Any objects, including single lines of text, text areas, and sprites may be coloured (even with graduated fills). In addition to 16 colour and 256 colour palettes, Chameleon offers 256 shades of grey and an RGB colour cube offering a choice of hundreds of colours. In addition, colours may be changed in hue, saturation and value (HSV values). The resulting coloured objects may be saved as Draw files with or without four colour separations, or as a separate Draw file for each individual colour! A zoom feature helps with accurate editing in small areas. Chameleon positively encourages experimentation with colour combinations and is an extremely useful aid to graphic design.

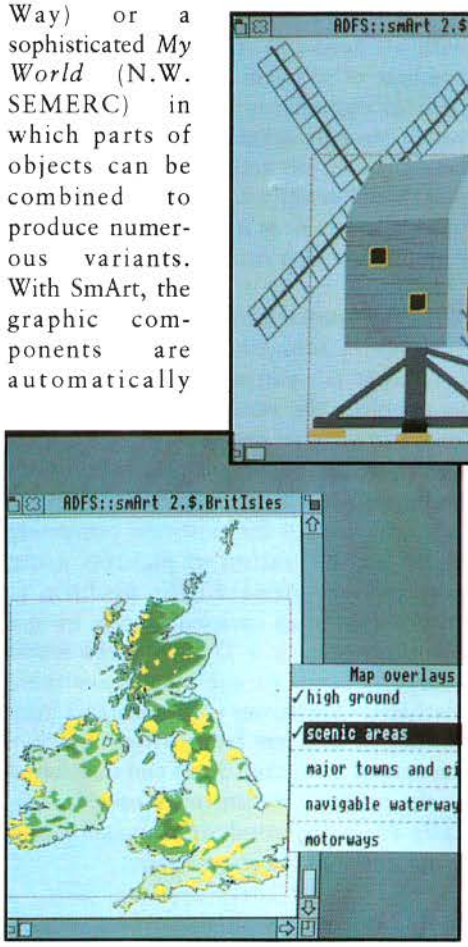


Chameleon

SMART ART

4Mation's *SmArt* Suite offers an alternative solution: a linked graphics system in

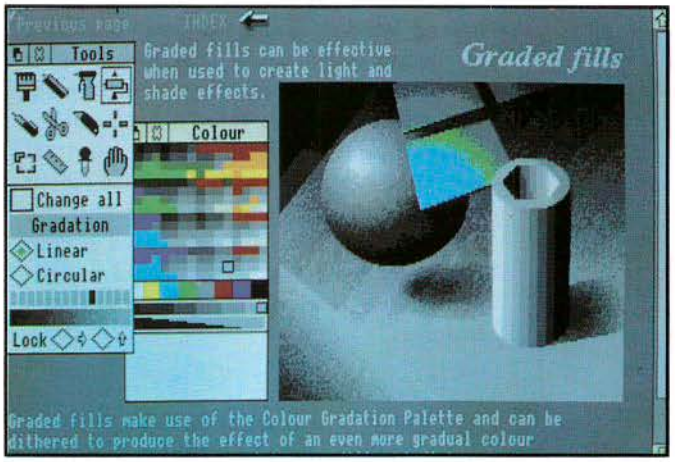
which different parts of a picture can be altered by making selections from a menu. This technique resembles *Picture IT* (Appian Way) or a sophisticated *My World* (N.W. SEMERC) in which parts of objects can be combined to produce numerous variants. With SmArt, the graphic components are automatically scaled so that the parts always fit no matter how the resulting image is altered. Completed images are saved as Draw files which can be dragged directly into other applications or added to the library of clip art. The whole process is remarkably easy and quick to execute. Schools will undoubtedly find a multitude of uses for the ever-expanding range of predefined SmArt files supporting National Curriculum topics, but for those wishing to create their own SmArt files from scratch, SmArt Filer provides the vehicle for integrating Draw files created with Draw.



SmartArt

ARTWORKS

ArtWorks (Computer Concepts) is the undisputed monarch of the drawing programs for the Archimedes range, but before dismissing it as too sophisticated/expensive for school use there are considerable advantages for schools. Firstly, it is a superb design tool allowing techniques to be tried which are just not possible in any other RISC OS package thanks to its clever object-oriented design. For example, even text can receive graduated fills yet continue to possess all normal textual attributes. In fact, all drawn objects are able to inherit characteristics and capabilities that you would not normally expect. Its perspective and envelope tools, multi-level undo/redo operations, 24 bit colour dithering, freehand drawing, print tiling (covering many sheets of paper), dynamic blending, tweening, and layering, to mention but a few of the innovative features, really make this a challenging and exciting experimental tool for older pupils.


Previous page
INDEX
Tools
Graded fills can be effective when used to create light and shade effects.
Graded fills
Colour
Change all
Gradation
Linear
Circular
Lock
Graded fills make use of the Colour Gradation Palette and can be dithered to produce the effect of an even more gradual colour

Revelation2

But ArtWorks is not a novelty; its fast redraw rate is really appreciated when working on a complex illustration, and the fact that it can export its pictures in a multitude of formats means that files transfer to and from CorelDraw (PCs) and Adobe Illustrator (Mac). Lastly, the real bonus is that for such a sophisticated drawing program it is unusually simple to use and understand, and so is accessible to a large number of pupils. Also note that Impression (v2.18) can now accept ArtWorks files directly. If budget restraints do not run to ArtWorks then *Vector* (4Mation) costs less than half and still offers vast improvements over Draw.

REVELATION

Revelation2 enjoys one huge advantage over its contemporaries: it is a complete drawing and painting system, totally RISC OS compliant, specifically designed with children's and teacher's needs in mind. It has an impeccable pedigree: designed at Homerton College in conjunction with NCET, it easily represents the best of art software available for schools. It can handle multiple images, cut and paste among windows, and features short tear off menus which allow easy combination of tools and comprehensive colour control and filter facilities from which colour separations and colour balance/contrast can be experimented with. Extended colour mixing, a variety of fills, a comprehensive set of drawing tools and improved pattern capability for reflected/tessellated designs are just a few of its more advanced features.

Revelation2 is also available in a CD-ROM version which contains additional pictures and resources and as 'ImagePro' with a host of additional features (e.g. in colour manipulation) and extensions to existing Revelation2 facilities. Every secondary software library should possess a copy of Revelation2 or, preferably, imagePro - for despite its sophistication it is easily learnt and very 'usable'.

CONCLUSION

This overview of what's on offer is by no means exhaustive. I have simply picked those items which in my experience have proven track records in the classroom. As with all decisions, those relating to the purchase of software are best taken in the light of experience and school policy. I would strongly suggest most strongly that before buying any art or design package, you should attempt to try it either at your local IT centre or at a school which already employs it in their curriculum.

With the limited numbers of Archimedes systems in schools, one of the major headaches is ensuring that no one party monopolizes the machine for an excessive length of time to the detriment of others. Obviously the problem depends very much on the type of activity concerned, but in my experience one of the most time consuming tasks is the creation of pictures using graphic art software. The problem is exacerbated when creating graphic images for inclusion in a DTP project when everyone needs to use all the available machines. One answer is to invest in a huge library of clip art from which suitable images can be tracked down and transferred to the working document. However, this calls for very good organisation and management of the image-library.

In addition to its purely artistic merits, graphic art on the computer provides a means for experimenting with colour and exploring drawing, design and the mathematical concepts of symmetry, angle and perspective. Computer graphic art naturally complements the writing process by providing a source of illustrations which, with modern computer systems, can be simply pulled or 'dragged' directly to the place where they are required in the text. Like all open-ended software there is always something fresh for the children to discover. They can experiment with how it works and what the applications might be; and even the youngest of pupils or those with special educational needs can create vivid, lively images, and with additional software begin to animate them.

C Notebook: Hints & Queries

Compiled and Linked by Lee Calcraft

PROBLEMS WITH POINTERS

I am having problems (machine crashes etc.) trying to change the pointer shape when the pointer enters a window. I am using the following:

```
sprite_id *sid;
.......
case wimp_EPTRENTER:
  strcpy(sid->s.name,"ptr_new");
  sid->tag=sprite_id_name;
  pointer_set_shape(resspr_area(),\
    sid,21,11);
  return TRUE;
```

Can you help please?
Tony Shew

Handling sprites is not half as easy as it ought to be, and RISC_OSLib doesn't help a great deal. There are a couple of points in your code which are likely to be causing the crashes you are having, and which probably result from RISC_OSLib's very sparse documentation.

The prototype for pointer_set_shape() is as follows:

```
os_error *pointer_set_shape(sprite_area*
,sprite_id*,int,int);
```

You have set up a sprite_id pointer as follows:

```
sprite_id *sid;
```

and then copied data into the structure to which it points - but of course it points nowhere (in fact it points to location zero). Instead you must declare your own structure:

```
sprite_id sid;
```

and then put the correct data into the structure, and pass a pointer to sid - i.e. the second parameter to pointer_set_shape() will be &sid.

Note also that sid.s.name should not have the name of your sprite copied into it, since it is only a pointer. You will therefore need to use something like:

```
char s_name[]="my_sprite";
sid.s.name=s_name;
```

It would also be advisable to wrap up your call to pointer_set_shape() in a wimpt_complain(). This will let you know if problems arise such as an unknown sprite etc.

USING GETENV()

David Pilling

The following is a quick way to see if a system variable is defined:

```
if (!getenv("Wimp$Scrap"))
    errorbox("Wimp$Scrap not defined");
```

The same function can be used to return the value of a system variable:

```
strcpy(string,getenv("My$Var"));
```

SOME USEFUL MACROS

David Pilling

It is easy to forget how useful macros can be in C. Here are a couple of examples:

The *USE* macro can be used to stop the compiler complaining about unused variables:

```
#define USE(a) ((a)=(a))
```

For example:

```
USE(redundant);
```

The following macros provide their Basic equivalents:

```
#define ABS(a)((a)>=0?(a):-(a))
#define SGN(a)((a)==0?0:((a)>0?1:-1))
```

Remember, however, that like many macros these two will foul up when used with a++ or a- -.

3D SLAB FATALITIES

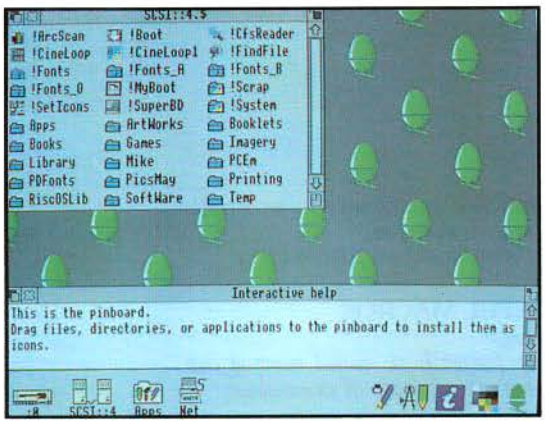
Lee calcraft

There is a bug in the code which handles the new RISC OS 3 3D icons (which use the R validation string). If you are using a depressable button (e.g. type R5) in an application's *Quit* dialogue box - along the lines of *You have one unsaved document, Discard, Save, Abandon?* - if the user elects to Discard, the Desktop will hang. This is because RISC OS tries to put the button back into its unclicked 3D state (i.e. raised) *after* the application has disappeared. The simple workaround is to call *event_process()* repeatedly, until the mouse button has been released. Then call it a couple more times for good measure, and only then do an *exit(0)*.

Please send us your C hints - all published hints will be paid for.

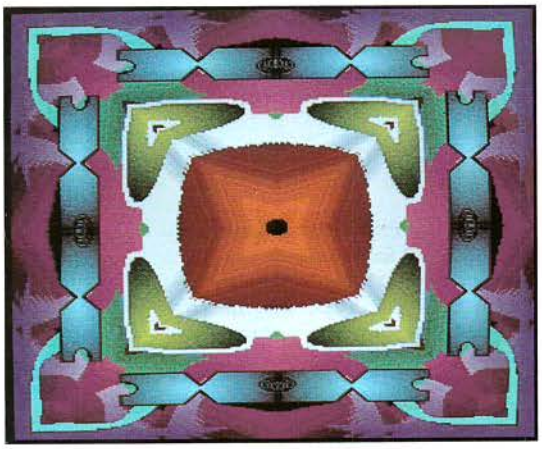
RISC USER DISC CONTENTS May 1993

Multiple Boot Sequences



Have you ever wanted to maintain two or more configurations for your Desktop, depending on what you're doing at the time? This application allows you to select between various alternatives by holding down a letter key at power-up or reset.

Kaleidosprite



A superbly smooth series of beautiful, hypnotic patterns evolve perpetually from the starting point of a set of sprites. The program can be customised to use different sprite sets of your own design.

PC Emulator Examples

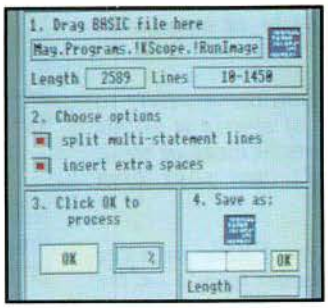
Two PC emulator utilities: the first is a RISC OS to DOS text file converter. The second is an example of the use of the Startup Text facility in the PC Emulator's configuration window, demonstrating the use of alternative booting sequences. One initialises EMS memory, while the other doesn't.

PC Num Lock Toggle

An application that generates a small machine code program for the PC, used to toggle the status of the Num Lock key, to be used in boot up sequences. Easily modified to set Caps Lock status in a similar fashion.

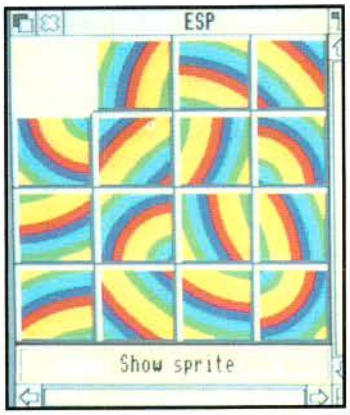
ADDITIONAL ITEMS DESCRIBED IN THE MAGAZINE

Basic Program Formatter



The Basic Program Formatter is a full multi-tasking application that takes a compacted Basic program or one with few spaces in it, and inserts spaces between keywords and variables. It also breaks up multi-statement lines so LISTO can be used to full effect.

Enhanced Sliding Block Puzzle



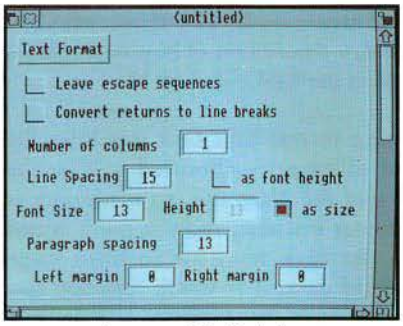
A most elegant implementation implementation of a sliding puzzle, featuring solid drags and the ability to use any sprite as a basis for the puzzle. Comprehensive shuffling facilities are provided.

BONUS ITEMS

Enhanced CSD

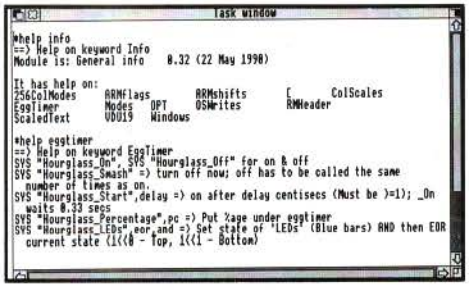
This upgraded application allows the CSD (Currently Selected Directory) to be set by dragging its icon to the desired directory. The icon can also be dragged to the backdrop or to the other side of the icon bar to reposition it. Enhancements include a RISC OS 3.1 upgrade and some minor bug fixes.

DrawText

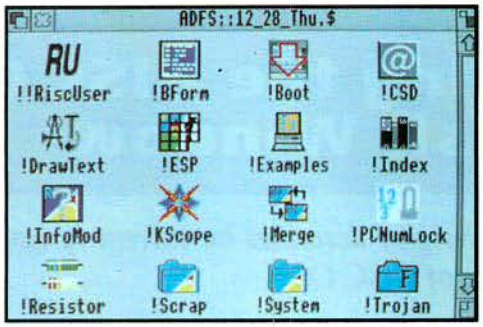

(untitled)
Text Format
Leave escape sequences
Convert returns to line breaks
Number of columns 1
Line Spacing 15 as font height
Font Size 13 Height as size
Paragraph spacing 13
Left margin 0 Right margin 0

A utility that helps with importing text (ASCII or Ist Word Plus) into Draw. It gives increased flexibility over text characteristics (size, font, colour, positioning) that compares well with many word processors. Real DTP documents can be put together with only Draw and DrawText.

Information Module


Task window
*help info
<== Help on keyword Info
Module is: General info 0.32 (22 May 1998)
It has help on:
256ColModes ARMflags ARMshifts C ColScales
Eggtimer Modes OPT OSWrites RMHeader
ScaledText VDU19 Windows
*help eggtimer
<== Help on keyword EggTimer
SYS "Hourglass_On", SYS "Hourglass_Off" for on & off
SYS "Hourglass_Smash" =) turn off now; off has to be called the same
number of times as on.
SYS "Hourglass_Start",delay =) on after delay centisecs (Must be >=1); _On
waits 0.33 secs
SYS "Hourglass_Percentage",pc =) Put %age under eggtimer
SYS "Hourglass_LEDs",eor,and =) Set state of 'LEDs' (Blue bars) AND then EOR
current state (1<<0 - Top, 1<<1 - Bottom)

A relocatable module that gives command line help on a number of programming areas. Includes source code in Basic Assembler.



Trojan Font

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

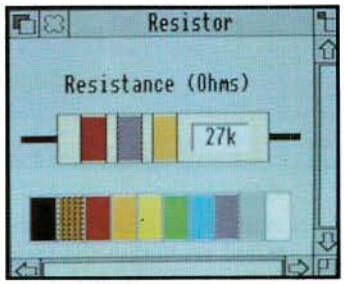
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

1234567890

„<>/?"£□□\-_=+£¤

A family of outline fonts, including true italics, designed specially for RISC User. Compatible with RISC OS 2 and 3.

Resistor



A Desktop application for the electronics enthusiast. Converts from colour codes to resistance value and vice-versa, in a highly visual manner.

ArcScan Data

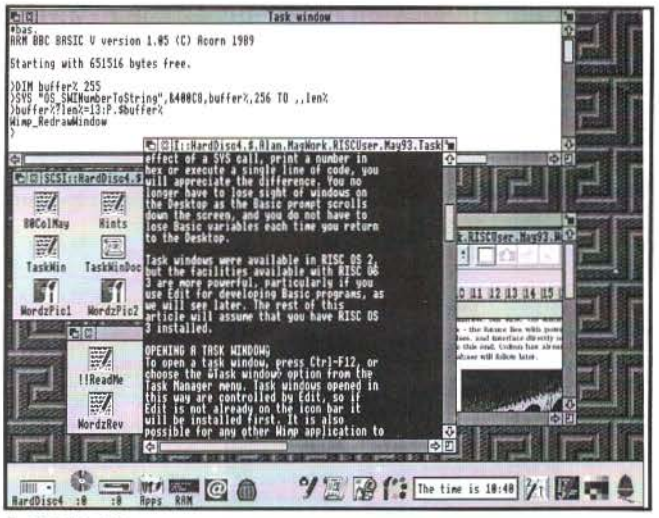
ArcScan indices for this issue of RISC User and BEEBUG Vol.11 No.10.

This action-packed magazine disc costs just £4.75 inc Vat.

Using the RISC OS Task Window

Alan Wrigley describes an extremely useful feature of RISC OS

The Task window is a very powerful and probably somewhat under-used feature of RISC OS. What a task window does is to create a command line environment within the Desktop, which multi-tasks with all the other Wimp applications. This allows you to execute any of the normal operating system commands from the Desktop, without all the usual disadvantages that result from pressing F12 (suspended operations, windows scrolling off the screen and so on).


Task window
RISC OS
RISC BBC BASIC V version 1.05 (C) Acorn 1989
Starting with 651516 bytes free.
)DIM buffer% 255
)SYS "OS_SWINumberToString",&400C0,buffer%,256 TO ,,len%
)buffer%?len%=13:P.$buffer%
Wimp_RedrawWindow
)
effect of a SYS call, print a number in hex or execute a single line of code, you will appreciate the difference. You no longer have to lose sight of windows on the Desktop as the Basic prompt scrolls down the screen, and you do not have to lose Basic variables each time you return to the Desktop.
Task windows were available in RISC OS 2, but the facilities available with RISC OS 3 are more powerful, particularly if you use Edit for developing Basic programs, as we will see later. The rest of this article will assume that you have RISC OS 3 installed.
OPENING A TASK WINDOW
To open a task window, press Ctrl-F12, or choose the Task window option from the Task Manager menu. Task windows opened in this way are by default controlled by Edit, so if Edit is not already on the icon bar it will be installed first. It is also possible for any other Wimp application to
BBColMay
Hints
TaskMin
TaskWinDoc
WordzPic1
WordzPic2
!ReadMe
WordzRev
HardDisc4
Apps
RAM
The time is 10:40

A mode 39 screen with the upper section used to keep a task window open on the Desktop as you work

What is more, other tasks (including Basic) can be started up within the task window in exactly the same way as they are started from the command line. In the case of Basic, this gives you access to its facilities without ever leaving the Desktop. If you just want to use these for a moment or two - perhaps to see the effect of a SYS call, print a number in hex or execute a single line of code, you will appreciate the difference. You no longer have to lose sight of windows on the Desktop as the Basic prompt scrolls down the screen, and you do not have to lose Basic variables each time you return to the Desktop.

Task windows were available in RISC OS 2, but the facilities available with RISC OS 3 are more powerful, particularly if you use Edit for developing Basic programs, as we will see later. The rest of this article will assume that you have RISC OS 3 installed.

OPENING A TASK WINDOW

To open a task window, press Ctrl-F12, or choose the *Task window* option from the Task Manager menu. Task windows opened in this way are by default controlled by Edit, so if Edit is not already on the icon bar it will be installed first. It is also possible for any other Wimp application to nominate itself as a supplier of task windows, and run tasks or execute commands in them, but this is beyond the scope of this article. For those who are interested, a description of how to do this is included in the RISC OS 3 PRM.

Returning to our Edit task window, the amount of memory allocated will be the contents of the *Next* slot, so if memory is tight in your machine, and you don't intend to use the task window to hold huge amounts of data, it is worth reducing this before you open the window. Alternatively you can alter the memory allocation dynamically just by typing:

```
WimpSlot nK nK
```

at the prompt in the task window itself, where n is the required size in kilobytes. 32K should be plenty for most purposes.

Once the window is open, you will see the familiar command line star prompt, at which you can type any command and it will be executed just as if you had been at the command line outside the Desktop. So you can open directory viewers with *Filer_OpenDir*, use *Show* or *Set* to see or set the value of a system variable, see what fonts are installed with *FontCat*, or any of the myriad of other star commands. But there is one huge advantage over the command line: because this is an Edit

window, everything you typed and any text displayed as a result of executing a command remain in the window, which simply expands to accommodate it. To look back at the results of a global *Show* command you issued five minutes ago, for instance, all you do is scroll the window up until you find it.

Obviously this cannot go on for ever unless you have unlimited memory, so you would normally delete sections of text in the window when you are sure you no longer need to refer to them.

BASIC IN A TASK WINDOW

One of the most fruitful areas in which to explore the potential of task windows is using the facilities of Basic without having to leave the Desktop. If you type *Basic* at the star prompt in the window, Basic will start up, showing the familiar copyright message and the chevron prompt. You can now enter any Basic commands, and the results will be shown in the task window. You can execute lines of code, for example:

```
PRINT 88+32*19+261
PRINT MODE
SYS "OS_SWINumberToString",&46,buf%,256
```

You can even run programs, provided they are not Wimp-based and that they do not make use of facilities the task window cannot provide (graphics for example).

If you open a menu over a task window, you will see a pair of items entitled *Link* and *Unlink*, one of which will be shaded. If the task window is linked (i.e. *Link* is shaded), then anything typed in the window will be treated as a command, as I have just described. However, if the window is unlinked, then the data in the window can be edited just like any other Edit window, via a further menu option *Edit*, which provides via its submenu all the normal Edit facilities. This enables you to edit previous commands while unlinked, before reissuing them while linked, and makes up for the fact that the cursor editing normally available at the command line and in Basic is missing from a task window.

Also on the menu is a powerful option called *TaskInput*. This is normally shaded, but if there is a marked section of text either in the task window itself or in another Edit window, the *TaskInput* option is made available. If you choose the option, the marked text will be transferred to the task window prompt, and executed if it ends with a carriage return. This means that you can execute lines or sections of Basic programs that you are editing elsewhere on the Desktop, just by selecting them and choosing the *TaskInput* option from a task window which is running Basic. This can be a very powerful development tool.

If you find that you normally press F12 many times during the course of a work session on the Desktop, as I certainly used to, then it is well worth having a task window permanently open. This need not usually have a large Wimpslot. Once you get used to using it, you will wonder how you ever coped with the old command line, particularly when you realise that your input does not have to be lost for ever in order to get back to the Desktop.

Astoundingly easy to use !
Acorn Computing Dec.

IMPACT!
The Database

A new easy to use database with direct Impression links

★ Very easy to use, via menu selections, click & drag operations etc.
★ Direct <Merge> of field data into *Impression* reports and labels, etc.
★ Fast Multiple Indexing, automatically updated on data entry or edit.
★ Multiple sorted sub-sets using powerful data filters.
★ Full control of displayed data formatting, including date & time.
★ Impression report designer, simply drag fields into document.
★ Drag CSV, TSB, ASCII Import & Export to applications or printer
★ Manual browsing and fast searching on *any* field. Just click and type.
★ Free format 'drag about' card designer allows wide choice of effects.
★ Up to 500 fields of 255 characters, records limited only by disc space.
★ Field types include text, integer, decimal, date/time, double precision money and flag (on/off) fields.
★ *Fully* multi-tasking & RISC-OS compliant to Acorn style guide.

Phone today
£49.95 + vat
Site licence available

Circle Software
33, Restrop View
Purton, Swindon
SN5 9DG
Tel: (0793) 770021

e.s.

The New Integrex Colourjet Printer

Ricky Delarre reviews the Integrex Colourjet Series 2 colour printer.

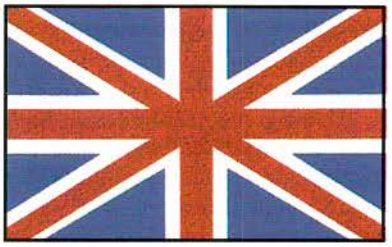
The first and most important point to make when reviewing the Colourjet Series 2 is that it is very cheap. Until recently a 300dpi colour ink-jet printer would be likely to set you back in the region of £600, rather than the far more modest £330 of the Series 2. It is just a shame that we have had to wait so long for it.

The Integrex Colour series 2 printer

Physically, the Series 2 looks like a BetaJet but with red writing on the front casing instead of black. Many of the internal parts seem to be directly lifted from the BetaJet too. The only difference I have spotted is that the top cover has been redesigned to allow for a larger (colour) cartridge. The whole unit is finished in a neat and attractive uniform grey, and occupies only a modest amount of desk space.

Paper can be loaded from a front opening which is accessible through a hinged flap. The carriage is also wide enough to cope with standard sized business envelopes. An optional sheet feeder sits underneath the main unit, and feeds the paper up through a slot in the bottom. The sheet feeder is the same as that on the BetaJet, a largish, fairly brutal looking device made of metal and the same grey plastic as used in the main unit. It can hold around 70 sheets of 80gsm paper. A neat feature is that you don't need to disconnect the sheet feeder to print the odd label or envelope; the printer first checks for manually loaded media before getting the sheet feeder to do its stuff.

The areas of black are generated by mixing all three colours together



Broad simple areas of colour are rendered quite well

The controls are much the same as the BetaJet, too. There is a 'local' button which is logically the opposite of the more usual 'on-line'. 'Linefeed' and 'Formfeed' buttons and a power light complete the somewhat sparse control panel. There is no audible warning; the printer just sits there winking at you if something goes wrong.

Printing is virtually silent but it does take time - this is not a quick way to dump colour graphics. For monochrome work there is a black cartridge which seems to turn the Series 2 into a BetaJet.

Text mode printing in monochrome is quick at 160cps (about 48 seconds for an A4 page) and of a very high quality. Monochrome graphics dumps are a lot slower, depending on the resolution. That said, I found the time taken to print out a whole A4 page of text and graphics was not prohibitive (typically 2 minutes), nor did it seriously affect my office efficiency. The RISC OS 3 printer driver (nothing for RISC OS 2) supplied with the unit is capable of delivering monochrome graphics output in

various resolutions (75dpi - 300dpi) and in several grades of grey-scale quality.

But what about colour printing? Well, you can load a colour cartridge with ease, set your printer driver for colour output, and go. This is when you start to realise that the Series 2 is not perfect.

Like any colour ink jet printer, the Series 2 has a lot of work to do. Colours are formed by printing three times, one with each primary ink colour. As printing progresses, the paper is fed very slowly and accurately to allow each ink colour to be overlaid upon the previous one (time for a full screen sprite about 5 minutes). On the whole I think it performs quite well.

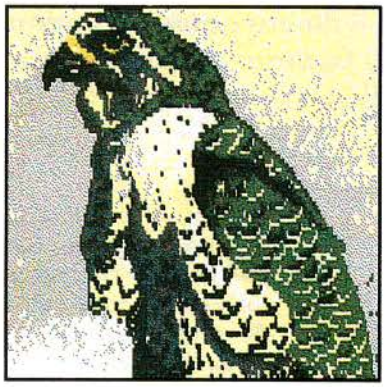
The best way to use this printer's colour output is with big, bold areas of colour. Graphs, spreadsheets and coloured text using bright primary or simple colours like red, green, yellow, etc., are generally rendered very well. It can make an enormous difference to get that spreadsheet printed out with red columns showing debits. One problem, though, when using it for such jobs, is that large areas of black tend to come out like areas of brown mud. The Series 2 has 3 jets rather than 4; the colour cartridge does not have a black. Consequently, to generate a black colour on the page, it mixes all the colours together. The result is not a perfect black. Black text is, however, generally rendered satisfactorily.

On the example printouts, it can be seen that where the printer is dealing with very bold colours (e.g. the German flag) the results are near-perfect. The Union Jack, however, has slightly less bold colours and as a result looks a lot darker and dirtier. Notice the way that on the German flag the edge box is slightly offset from the areas of colour. I have experienced much the same effects in other printing jobs, sometimes resulting in an unsatisfactory image.

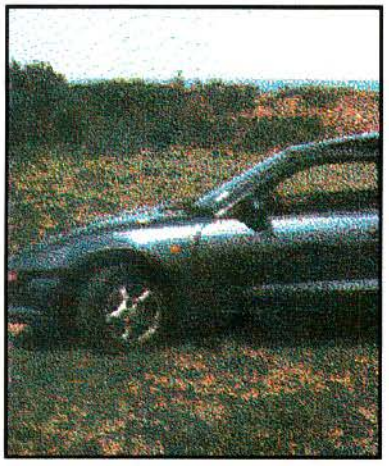
When printing high-quality images from packages such as ProArtisan or Artworks, I have found that the results tend to be a little unpredictable. Sometimes the printout looks great - and others not so. I have not been able to put my finger on what gets in the way, but I suspect it is a combination of software and hardware, rather than one specific fault.

The Series 2 suffers, like all other ink-jet printers, with the dreaded 'Wet Paper Syndrome'. Unless you are using top-quality ink-jet paper it tends to become soggy and rippled, particularly for the darker or heavier colours.

To conclude, the Series 2 colour printer is an amazingly cheap and relatively capable colour ink-jet printer. In monochrome mode, it is very accomplished, in colour mode less so, but I strongly suspect that improved printer driver software would help no end. In producing a colour printer at this price, Integrex has had to compromise to some extent in performance and quality. The question is whether this has resulted in a colour printer which is less than capable of fulfilling its colour printing role. The answer must lie with the potential user. My printed output tends to be 75% monochrome and 25% colour. The 25% colour tends to be mainly things like text, graphs and spreadsheets. For me, the printer is usable and useful. For an art-oriented user I suspect it's not.



Printout of a full colour sprite



Printout of a scanned colour image

Product *Integrex Colourjet Series 2*
Supplier *Integrex Systems Ltd*
Church Gresley, Swadlincote,
Derbyshire DE11 9PT.
Tel: 0283 550880
Fax: 0283 550325
Price *£330 ex. VAT*
Sheet feeder: £40 ex. VAT
Colour cartridge £21 ex. VAT
Black cartridge £11 ex. VAT
Available from most dealers.

Search and Replace

Mike Williams examines some of the powerful search facilities available to users of Edit and DeskEdit.

Users of DeskEdit have long enjoyed a much enhanced search and replace facility compared with that to be found in Acorn's Edit under RISC OS 2. Now that RISC OS 3 has arrived, the same powerful features are available to all, though DeskEdit has many more options at its disposal than are provided by Edit. The purpose of this article is to explore some of the power now available to users.

If, within an Edit (or DeskEdit) window, you click with the Menu button, and then follow the *Edit* option, and then the *Find* option (or just press F4), you will be presented with a window entitled *Find text* (see figure 1). At the foot of this window is the somewhat innocuous sounding *Wildcarded expressions*. Select this and a whole new world will be revealed.

WILDCARDED EXPRESSIONS

One of the main characteristics is that many of the wildcard characters will match more than one character. Thus if you search for 123 you know that every match will be with the string "123"; but if you search for ### then any match will be with a string of any three digits, but which three digits is unknown. However, the extended search still allows you to use all or part of any 'found' string as part of the 'replace' specification, even though you may not know its precise details - more of that later.

Let's have a look at some examples of extended searches in operation. It sometimes happens that a piece of text ends up with one or more spaces at the end of each line. These can be a nuisance as they are not readily identifiable until reformatting causes them to appear as gaps between words. We could search for:

```
<space>$
```

and replace by:

```
$
```

Note the use of <space> here and in other examples to represent the pressing of the space bar. Repeating this search and replace process until an immediate "Not found" occurs will complete the job, but it is not really very efficient where multiple spaces are concerned. However, the same result can be accomplished in a single search and replace using one of the other wildcard characters '^'. This specifies *one or more* occurrences of the following character, thus searching for:

```
^<space>$
```

searches for one or more spaces followed by a newline character. We simply need to replace whatever is found by a single newline character:

```
'$'
```

Another common requirement which I have is to reduce occurrences of multiple spaces to a single space. A similar search to the above will achieve this with a search string for two or more spaces:

```
<space>^<space>
```

replacing with a single space. However, if you try this out you may find that it doesn't totally complete the job.

Let me explain why. In the first example, the search was for *one or more spaces followed by newline* - a match had to include the newline character, and hence ALL the spaces before it. In the latter case the search is for *space, followed by one or more spaces*. If a sequence of three spaces is encountered, the search string is satisfied by just the first two spaces, which are then replaced, and the third of the three spaces, tested on its own, doesn't match the search string, and is thus left in the text. A repeated application of this search and replace would be needed to be sure that the job was done properly.

There is, however, a better way of doing this. Clearly, what we need to pick up all the spaces in a sequence is a further character (not a space) to terminate the search string, in the same way that we used

the newline character. The answer lies already in what I have said, and we will use the negation or 'not' character '~' (the tilde) to achieve this. Thus our search string becomes:

```
<space>^<space>~<space>
```

We are looking to match *a space, followed by one or more spaces, followed by any character which is not a space.* Again, the initial <space> character ensures we *only* match two or more spaces.

Now what about the replace string. We know we want to replace multiple spaces by a single space, but we must also put back the terminating non-space character. There is provision for this in Edit and DeskEdit, and the replace string becomes:

```
<space>?0
```

Whenever the search string specifies an indeterminate character (like a non space), it can be referred to (and included) in the replace string by using the '?' character followed by a number. A '0' is used for the first indeterminate character, 1 for the next and so on.

Suppose we have text where the start of each paragraph is already indented by three spaces, but we want to reduce all other occurrences of multiple spaces to a single space. Here's another, rather more complex variation on the same theme, using a search string of:

```
~[$<space>]<space>^<space>~<space>
```

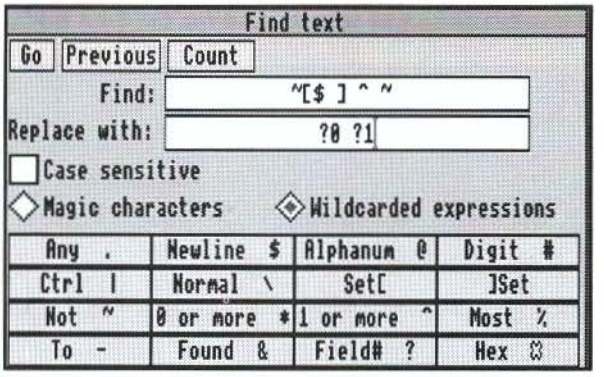
and a replace string of:

```
?0<space>?1
```

This introduces some new concepts. Square brackets can be used to enclose a sequence (or set) of characters, in this case newline and space. A match will be made with any character in the set. In this instance the set is preceded by the 'not' symbol, thus specifying a match with any character which is not a space or new line. Spaces used for an indent would be preceded by a newline character, so this case is now excluded. Any other non-space character, followed by a space, followed by one or more further spaces, and terminated with a non-space character will now be matched. It will be replaced by the first indeterminate character, then a single space, then the terminating character whatever it is.

GENERAL ADVICE

When performing a search and replace, don't be too hasty. Treat the first two or three matches as test cases to see if all is well before clicking on the *End of file Replace* option to complete the task. Another point, which is often overlooked, is that any of the special characters can be entered into the search or replace string by clicking over the character in the extended *Find text* window - this is particularly useful for the hex " character. This can be useful in filtering out unwanted control characters which often occur when a file is imported from another machine - a PC say.



Search and replace strings to replace multiple spaces with a single space while retaining multiple-space indents

Another point to be aware of is that a search and replace can be irreversible. This is particularly true if the conversion of a string throughout a document means that the replacement string is identical to ones which already exist. After conversion, there is no way of distinguishing the new sequences of this type from the old. However, the *Undo* option will reverse the effect (up to the limit of the Undo buffer).

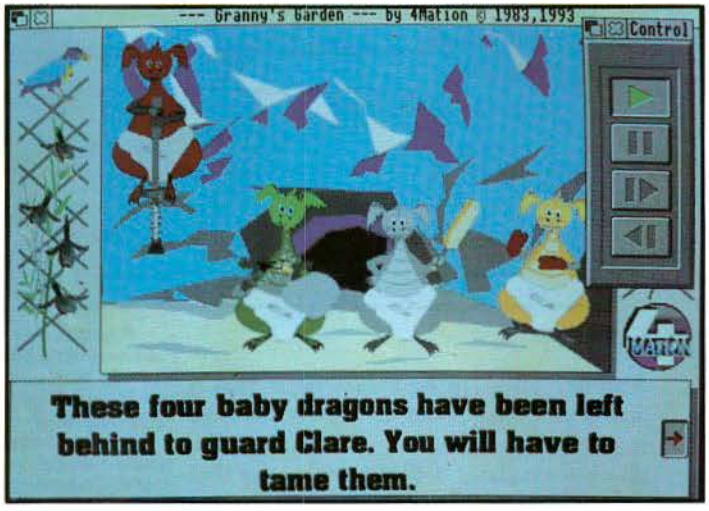
You can't do everything with these extended search and replace facilities, but there is a lot of power there which can work wonders if you persevere. It is just a pity that there is no way to store your more commonly used search and replace strings in a way that allows them to be accessed with just one or two key presses. Despite that, search and replace in Edit (as it has been in DeskEdit) is now very much improved over the original and will amply repay time spent in mastering its features.

Granny's Garden

Mark Sealey looks at this classic educational program for younger pupils now available for the Archimedes range.

HISTORY AND BACKGROUND

Granny's Garden by 4Mation has become a legend in its own lifetime; it was first released for the 8-bit BBC micro ten years ago, in 1983 - on tape. It quickly established itself as an essential item in the software libraries of many primary schools, and its success partially enabled a string of popular educational packages from the same firm to be developed, including *Worlds Without Words* and *Flowers of Crystal*. These are also to be versioned for the Archimedes range later in 1993.


--- Granny's Garden --- by 4Mation © 1983,1993
Control
These four baby dragons have been left behind to guard Clare. You will have to tame them.

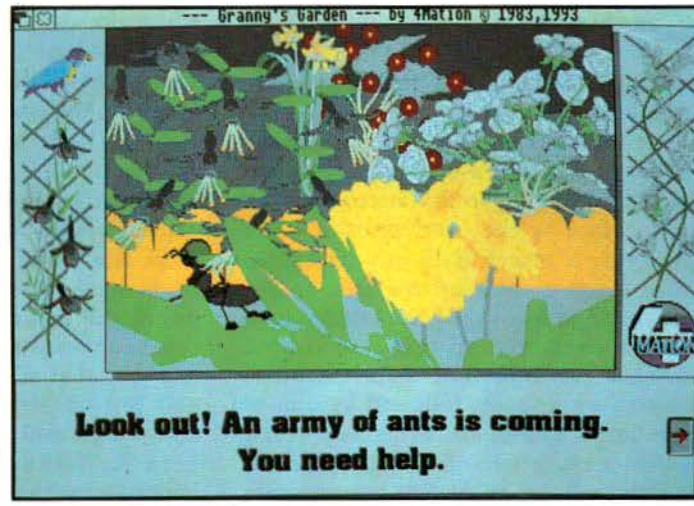
This fully rewritten version has a different author but the concept, the richness of ideas, and the standard of production, are all as you would expect from 4Mation.

The major changes are the vastly improved quality of graphics, and that the new Granny is fully Desktop and RISC OS compliant. Although the full screen can be taken over if desired, everything runs in a single window. This has a fixed, decorated, border and graphics, which are smoothly changed for each 'scene', above a nicely proportioned simple grey text window wherein appears a line for user input when needed.

GRANNY'S GARDEN IN USE

Granny's Garden is an adventure for younger users - typically to age 11, or Key Stages 1 and 2. In time-honoured tradition, six children have to be rescued. The environment in which you have to do this is a fairy tale 'fantasyscape' of caves, mountains, a woodcutter's cottage and castle etc. The ways of accomplishing the rescue are many and varied, relying on memory, observation, intuition, lateral thinking, inventiveness with language and a good deal of original guesswork.

The adventure is in four parts, which correspond to the four discs that comprise the package. Progression through the adventure is handled in two ways: the ubiquitous right-facing little red arrow to be clicked on when you are ready to continue, need to



answer the next question or repeat your input to the previous one; and a white box accepting text.

To the common question in children's adventures "Do you want to help?", many children will answer "OK" almost as readily as they will "Yes". This is not treated as a valid answer: more sophisticated parsing of user input, given the scale of the rewrite, would have been advantageous.

The situations in this adventure - whose scenario and characters have barely changed from the 8-bit version - are the product's strongest point by far. Each has just the right amount of substance to it, the degree of complexity is varied enough to hold pupils' interest and there are plenty of pleasant touches of humour. The language is appropriate to the age of the users for whom Granny is intended.

There is some measure of progression through the software, and the final quarter of the adventure needs all your wits about you to get to know the locations well enough to visit them in the right order and thus achieve your goal.

GRAPHICS

The major change from the original Granny's Garden is in the quality of the graphics. Now - as the accompanying "Making of Granny's Garden" disc proudly points out - advanced animation techniques have been employed. These are effective and include four dragons moving up and down - independently, ants passing behind foreground foliage and a consistent use of colour (important to younger users) that is easy on the eye but does not contribute greatly to the story.

CONTROLS AND MENUS

Two sets of simple and easy-to-use menus exist. The icon bar menu includes: *Choices* (affecting use of memory and screen), and the options to *Quit* and *Restart*. Alarmingly, neither of these has a confirmation box so work could be lost at a stroke - a serious flaw for an unsuspecting and inquisitive child.

There is smooth access to as many fonts as you have on your machine, and some control of font size. It is important to be aware that Granny's Garden defaults to the first font in your cache other than the system font. This could be an unwieldy one as happened on my machine; it could even be Dingbats (symbols). It needed to be changed to a more sensible font suitable for younger users. An inbuilt default to Trinity or Homerton would have been preferable, though there is the option to save choices, including those on fonts.

There is a second main menu. This includes options to save the current graphic as a sprite, to opt for a full-screen display, and what 4Mation (as in Noot) call 'remote control'. This manipulates 'playback' of animations through vertically arranged video-style icons and controls the soundtrack volume.

DOCUMENTATION

The 20 page A5 manual is up to 4Mation's usual excellent quality although it doesn't follow the start-up sequence from the title screen exactly.

There are umpteen good ideas for follow-up work and research away from the computer. They may not, though, fit specifically into a "subject" and thus satisfy the current mania for subject-led teaching: the ideas are no less valid for that.

Equally admirable, if a little over-priced, is the *Granny's Garden Resource Pack*; this consists of a disc of compressed Draw files and 22 highly imaginative photocopiable A4 activity sheets.

CONCLUSIONS

For anyone who enjoyed, used or even who missed the first Granny's Garden this updated version is a must.

It would be nice to say that this 32-bit package represented state of the art educational software analogous to the inspiration that the first version will always represent. But there are some minor flaws, and it is as well that 4Mation have an enviable reputation for responding to feedback from customers. Overall, Granny's garden is a superb package which is well worth its price.

Product *Granny's Garden*
Supplier *4Mation,*
14 Castle Park Road,
Barnstaple, Devon EX32 8PA.
Tel. (0271) 25353
Fax (0271) 22974
Price *£24.50 ex. VAT*
Site licence £49 ex. VAT
Granny's Garden Resource Pack
£15.00 ex. VAT

Archimedes Software

SparkFS

Gives you room to expand!

SparkFS is a new compressed filing system that lets you fit more on your discs. Programs work as normal, but files take up less space.

- Reads ARJ, ArcFS, SEA/PKarc, PackdDir, Spark, Zoo, Zip, LZH, Tar, Packit, Stuffit and Compactor archive files.
- Writes SEA/PKarc, Tar, Zip and Spark archive files. Zip files can be used on other machines and retain attributes.
- DES data encryption to password protect your files. Supports UUcode, HQX, AtoB, FCET, Boo and UNIX Compress
- New features in v1.20. Image filing system on RISC OS 3. Zip Deflation. Full LZH support. Fast Zip loading. Application archives.

SparkFS with manual and case is £23.96 inclusive.

(Upgrades, owners of Spark and ArcFS, can deduct £5.99 each)

ArcFax Fax modem program

Allows sending and receiving faxes from desktop using a Class 1 or 2 Fax modem. Received faxes can be saved as sprites. Faxes are sent by printing in the usual way. Script language, telephone directory, scheduling, received image processing. Suitable for SupraFax, TwinComm, Dynalink, Pace. Works with G3 fax machines.

Pace MicroLin FX Fax modem

Suitable for use with ArcFax, this modem will send and receive faxes at 9600bps and can be used as a 2400bps data modem with V42bis MNP data compression/error correction. It is very small and can be operated from a battery. BABT approved, supplied with mains psu, 5 year guarantee, carrying case.

ArcFax £23.96, Pace modem £250, ArcFax and modem £270.

Also with modem Hearsay II, full feature comms program from Risc Developments add £40. Prices fully inclusive. Free Acorn serial lead with modem, state computer model when ordering.

Due to be available now, V32bis version of MicroLin FX - £450 with ArcFax and Hearsay.

New! ArcFax now supplied with Class 1 Fax modem driver.

Disc 2 - Spell. Desktop spelling checker

Provides all the features possible in a stand alone spelling checker. Check files, check text in icons, continuous spell check whilst you type, display and correct last error. Edit dictionary. Multiple dictionaries. Supplied with 200,000 words. Fast. *(Owners of MicroSpell 2.XX can upgrade for free).*

Disc 7 - Chess

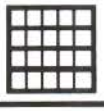
A Chess program that takes full advantage of RISC OS, running on the desktop in a window. You can work with other programs whilst you play Chess. Many features, computer play, hint, save games, edit etc. BAU Oct '92 said "Chess costs much less and plays better (than Cyber Chess)".

Disc 33 - Panorama. Your window on the World!

180,000 coordinates outlining the lakes, rivers, continents, state boundaries of the World and a program that can produce Draw files from them. You can make maps of any part of the world and then use them in DTP programs. Also positions of 1000 cities. Simple, cylinder, Mercator & perspective projections.

Disc 35 Trace/D2Font - Banish those jaggy blues.

Takes Sprites and turns them into Draw files. Sprite format pictures are plentiful, but if you try to magnify them, they develop jagged edges. Trace allows you to convert them into Draw files which can be made any size you want. With D2Font program for turning Draw files into fonts. Examples included.



Disc 36 WordSquare - Word Puzzle solver

Allows word squares to be solved and generated at random or from a given list of words. Supplied with 200,000 word dictionary. Save word square as Draw file and words as text.

Discs cost £5.99 each. Buy four get fifth one free!

David Pilling, P.O. Box 22, Thornton Cleveleys, Blackpool. FY5 1LR. UK.

Free Air Mail delivery on overseas orders. Please send for free catalogue.

The DOS Survival Guide - Part 3

Gordon Gilmore continues his series of articles with a look at how to load different DOS configurations at the flick of an icon.

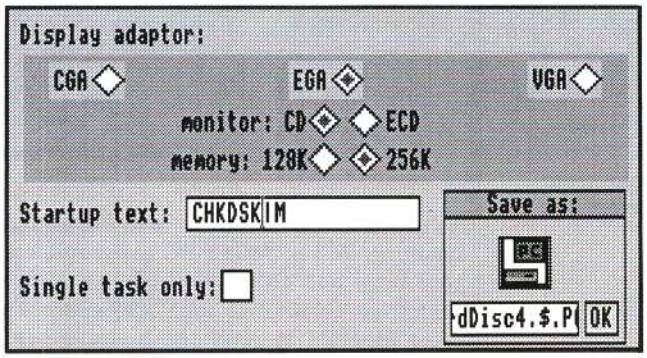
When we boot-up DOS, the commands in the AUTOEXEC.BAT file are executed to set up an initial computing environment. The PC Emulator provides additional flexibility in arranging the boot-up through use of the 'Startup text' facility in the Emulator configuration window (figure 1). This text will be sent to DOS on a keystroke-by-keystroke basis just as if we were to type it at the keyboard as soon as the AUTOEXEC.BAT file execution is finished.

So, for example, if after booting up we want to check how much DOS memory we had available we could insert the word 'CHKDSK|M' into the startup text box ('|M' is the 'Return' or 'Enter' keypress needed to terminate the command). CHKDSK is a DOS utility whose primary function is to check a disc for errors. It just happens to report the memory space available as well. We may not want to do this every time we boot up. Instead, we could save a separate configuration file, perhaps renamed from *!Choices* to *!CHKDSK*, in our PC directory. Double-clicking on the file icon would then automatically load the Emulator with the CHKDSK command ready to run. We can save a whole set of different starting configurations for different DOS jobs like this.

Although only 19 characters will be displayed, the start-up text itself can be up to 256 characters long. This allows quite a complicated set of instructions to be run after start-up as long as each complete instruction in the text is terminated by '|M'.

If a complicated series of start-up commands is needed, a more sensible approach is to use a batch command file (batch file for short). We have already met an example in the shape of AUTOEXEC.BAT, but what exactly is a batch file?

Simply, it is a list of commands, written exactly as you would type them at the keyboard, which will be passed one by one to the command interpreter for execution. The file must be given the extension .BAT. When the DOS interpreter is presented with a filename, say PROG, on the command line, it will look in the current directory and try to run a binary image program file called PROG.COM. If PROG.COM cannot be found DOS will try to find and run an executable program file called PROG.EXE, and finally, if all else fails it will look for PROG.BAT and execute the instructions in that. If none of these files exists in the current directory DOS will then search, in order, all the directories listed in the current PATH.

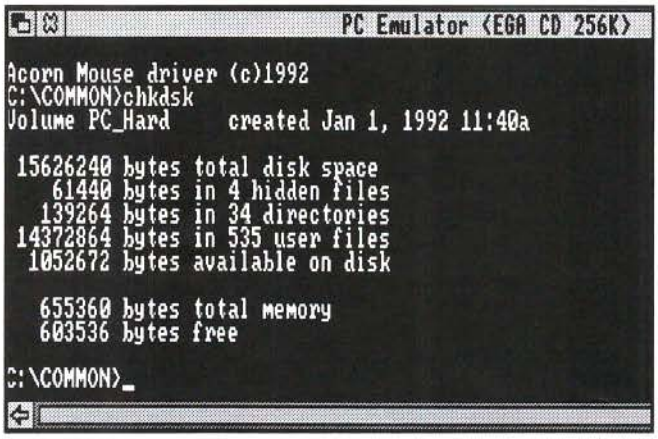


Part of the Emulator configuration window

Batch files are as important to DOS as the Obey file to RISC OS, but we will leave them for the present to look at memory configuration.

It is common knowledge that the normal memory limitation of the PC is 640K. When the PC became established and PC programs became more and more memory hungry third parties started to develop dodges to make more memory available to programs. There are two types of extra memory you will see written about - extended memory and expanded memory. Confusing isn't it!

Extended memory can only be accessed by special addressing modes of the processor chip. Device drivers such as EMM386.SYS handle this. As far as the PC Emulator is concerned we can forget extended memory, since the Emulator can't handle it. So we are left with expanded memory. On a real PC this would be extra memory mapped into the normal memory space in large chunks by a driver such as EMS.SYS. It all seems rather bizarre to emulate this on a machine with oodles of directly addressable memory but this is precisely what the 'LIM EMS size' option provided in the PC Emulator configuration window is for.


PC Emulator (EGA CD 256K)
Acorn Mouse driver (c)1992
C:\COMMON>chkdsk
Volume PC_Hard created Jan 1, 1992 11:40a
15626240 bytes total disk space
61440 bytes in 4 hidden files
139264 bytes in 34 directories
14372864 bytes in 535 user files
1052672 bytes available on disk
655360 bytes total memory
603536 bytes free
C:\COMMON>_

CHKDSK response

Why should we want to use expanded memory? Many recent PC programs are very large and are written in such a way that they economise on RAM space by using program overlays and by using hard disc space as virtual memory. If the computer has limited ordinary memory then the program may frequently have to swap program segments and data between hard disk and memory. If expanded memory is available then this can be used to avoid these swaps making the program more efficient.

Lee Calcraft explained how to set up expanded memory in detail in RISC User 6:3 *(PC Corner)*, and there is no need to repeat his advice. If, as I suggested in part 1 of this guide, you copied EMS.SYS into the UTILS directory, then alter the DEVICE= line in CONFIG.SYS accordingly: 'DEVICE=C:\UTILS\EMS.SYS'. Lee suggested configuring the Emulator to use all the remaining ARM memory as PC expanded memory. Of course, using all of the ARM memory would leave none for other RISC OS programs and if you intend to multi-task the Emulator you will probably have to compromise with less expanded memory. Incidentally, if there is not enough memory available when EMS.SYS looks for it, the Emulator will run but no memory will be allocated. It will use 64K of memory more than it needs to but, more importantly, there is a small possibility that applications programs will not work if the EMS driver is present without associated memory. I find that some PC programs I use perform perfectly well without EMS whereas with others I would prefer to have some available.

It would be convenient to be able to run the Emulator with or without expanded memory at the click of an icon but that would need two CONFIG.SYS files - one with and one without the DEVICE=C:\UTILS\EMS.SYS command. We could set up a !Choices file with the EMS size set to zero, but it is not a good idea to boot up DOS with redundant drivers loaded. A more elegant solution is to set up a RISC OS application which can select an appropriate CONFIG.SYS file.

Create a new directory, !PC_EMS, within the directory where your existing !PCEm application is. Open a Filer window onto !PC_EMS and transfer a suitable configuration file with the LIM EMS size set appropriately into it. Use Edit to create the !Run file shown in the box and save it in the same directory. Now create two DOS configuration files in your DOS root directory, CONFIG.EMS to be used when you do need expanded memory, which must include the DEVICE line given above, and CONFIG.SYS for normal use which does not.

```
| !Run file for PCEm application EGA with EMS.
|
Set CONFIG$File ADFS::4.$.PC.Drive_C.CONFIG/
Copy <CONFIG$File>SYS <CONFIG$File>BAK
Copy <CONFIG$File>EMS <CONFIG$File>SYS
|
Run  <Obey$Dir>.!Choices
|
Rename <CONFIG$File>SYS <CONFIG$File>EMS
Rename <CONFIG$File>BAK <CONFIG$File>SYS
```

Now clicking on the !PC_EMS icon temporarily replaces the normal

CONFIG.SYS by CONFIG.EMS and boots up the Emulator configured according to the !PC_EMS.!Choices file. Then, as long as the Emulator is quit using the icon bar menu, the CONFIG.SYS file will be returned to its original state. Just to tidy things up you might like to create an icon for the !PC_EMS application. Mine is based on the original !PCEm icon and has bulging sides to suggest more memory than the 'case' can hold. Rather than create a separate file in !PC_EMS I have added a !pc_ems sprite to the !Sprites file in the !PCEm directory. The magazine disc contains the complete application including examples of all the files discussed in the series so far and an Obey file to copy them into appropriate directories.

To recap, over the last three articles we have:

- created a basic set of working directories.
- created a general AUTOEXEC.BAT file which sets up a comfortable working environment.
- set up a general CONFIG.SYS file.
- created a set of !Choices files to allow us to vary the Emulator configuration from time to time.
- set up the !PC_EMS mini application to run the Emulator with expanded memory.

Believe it or not we now have better facilities than the normal PC user for selecting just the right configuration for the job in hand. We are now ready, at last, to delve into the deeper mysteries of DOS itself. We will start next time by looking at some of the standard, but underused, keyboard short cuts. In the meantime, in response to comments which have been made in RISC User about the inconvenient setting of the NumLock key when the Emulator is booted up here is a short Basic program to help. Running the program will create a DOS utility, NUMLOK/COM, in the current RISC OS directory. I suggest that you move it from there into the \UTILS directory on your DOS hard disc. Then typing:

```
NUMLOK +
```

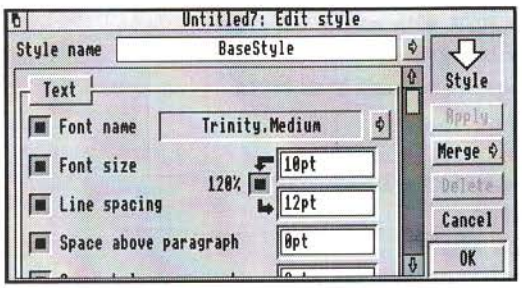
at the DOS prompt will switch NumLock on, so that the numeric keypad gives numbers rather than cursor movements, and NUMLOK - will switch it off. You could also make the one byte alteration suggested in the program at line 220 and create a CAPLOK/COM program to set the state of CapsLock in the same way. Unfortunately, although the programs will set the internal state of the lock, the state of the keyboard lights will not be affected. You could, if you wish, insert these instructions into your AUTOEXEC.BAT file or into the Startup text to set the state of the keys when you boot up.

```
10 REM >DOS_NumLok
20 REM G.R.Gilmore
30 REM Creates a DOS Utility
40 REM to toggle NumLock ON/OFF
50 REM Use: NUMLOK - (with one
space) switches OFF
60 REM NUMLOK with any other char
(or none) switches ON
70 REM Use at command line or in
AUTOEXEC.BAT
80 :
90 file%=OPENOUT""NUMLOK/COM""
100 READ A$
110 WHILE A$<>"*"
120 BPUT#file%,EVAL("&"+A$)
130 READ A$
140 ENDWHILE
150 CLOSE#file%
160 OSCLI(""SetType NUMLOK/COM
FE4"")
170 END
180 :
190 REM Alter line 220 to 'DATA 40'
to create CAPLOK/COM
200 :
210 DATA B8,40,00,8E,C0,B3
220 DATA 20
230 DATA 80,3E,82,00,2D,74,06,26
240 DATA 08,1E,17,00,C3,F6,D3,26
250 DATA 20,1E,17,00,C3
260 DATA *
```

Good Impressions

Richard Grant offers counsel on styles for users of Computer Concepts' Impression.

This month we're going to have a quick look at styles and rulers, both powerful features of Impression with which every user should be familiar. In short documents, the *Effects* menu can be used to alter the appearance of the text. For longer documents though, it becomes increasingly important to be able to manage text using a series of named styles such as *Computer Text*, *Main Heading*, *Quotation*, *Address*. Each of these styles can be altered at will, affecting all text to which the style is applied.



Edit style window showing BaseStyle

PUTTING ON THE STYLE

If master frames control the layout of pages, styles control the appearance of text. Styles, like effects, can be applied in two ways: switching on the style at the cursor and typing, or applying the style to a selected area of text. To start with, we will look at some of the features of the default styles and how you can alter them.

Impression styles can be superimposed on each other. In fact, all text has the style *Basestyle* applied to it, although some text may have other styles applied as well. Other styles you apply to a piece of text supersedes some or all of the settings in *Basestyle*.

With the cursor on some plain text, call up the Style Editor with Ctrl/F6 (or *Edit Style* from the *Style* menu). You will see that in *BaseStyle* many of the options are 'on', since BaseStyle must define all the default settings. For example, the text size is at the default size, which is 14pt. It may be that this size is not what you would choose and would cause inconvenience every time you create a new document. If this or any other setting is not as you would want it, the first job after installing Impression is to alter any or all of the defaults to suit your preferred values.

To do this, look inside the Impression directory (by Shift-double-clicking on the *!Impress* icon). Here, you will find a directory called Auto: open this directory and you will find an Impression document called *!Default*. This is your default document, and it will appear whenever you click on the Impression icon to create a new document. You can load and edit the default document like any other, changing styles or entering text: try now, by setting the font size in *BaseStyle* to, say, 10pt, remembering to save the document afterwards.

For the changes to take effect, you must quit and restart Impression, but from now on, every time you create a new document, your default text size will be 10pt. Don't forget that you can change any of the other parameters whilst you are there at the same time, such as the choice of Master Page, style details etc. This makes life much easier for the future.

There are several other styles built into Impression. These are the list of styles found in the style list (in the *Style* menu) and which run down from *Main Heading* to *Table* (or *Hanging Indent* if you have version 2.16 or earlier). Any of these can be changed in the default document, which makes Impression very flexible. So, if you decide that 24pt Homerton Bold is not suitable for Main Heading, edit its details as follows.

Firstly, call up the Style Editor and select the *Main Heading* style. You can do this either by turning on *Main Heading* from your text by pressing F1, which will apply the style immediately at the cursor, or by calling up the Style Editor, choosing *Main Heading* from the style list (click on the arrow at the

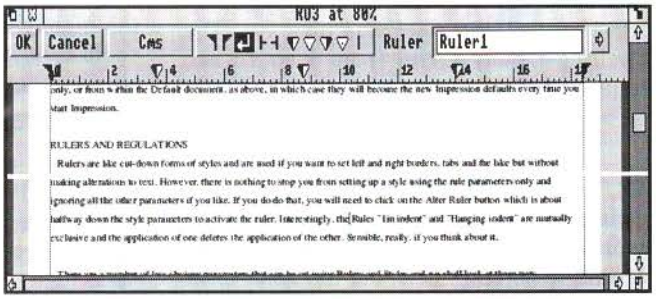
right of the *Style Name* field). The Style Editor will load the parameters for *Main Heading*, and you can edit them from here directly, clicking on OK when you have finished. Note that if you have already used *Main Heading* somewhere in your existing text, that text will change to the new setting immediately. If you want to experiment, click on OK with Adjust, and the dialogue box will remain on screen.

Altering styles can be done from either within your current document, in which case the changes will be local to that document only, or from within the *!Default* document in the *Auto* directory, as above, in which case they will become the new Impression defaults every time you start Impression.

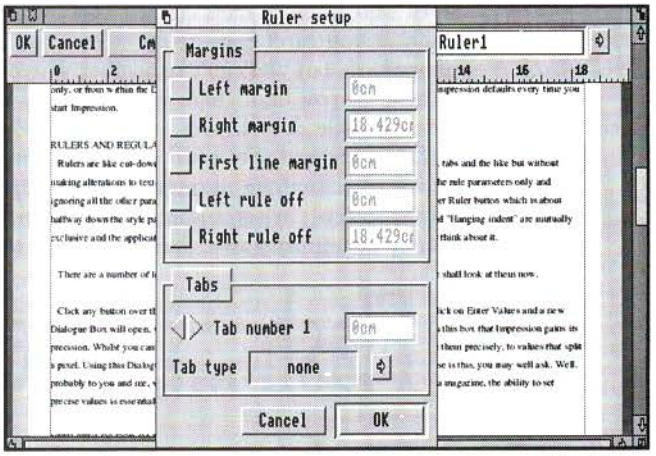
RULERS AND REGULATIONS

Rulers are special cases of styles which only affect margins and tabs, never text. There is nothing to stop you from setting up a style using the rule parameters only and ignoring all the other parameters if you like. If you do so, you have created a ruler, albeit using a slower method. If you do that, you will need to click on the *Alter Ruler* button, which is about halfway down the style parameters, to activate the ruler. Interestingly, the rulers *1in indent* and *Hanging indent* are mutually exclusive and the application of one cancels the application of the other. Sensible, really, if you think about it.

There are a number of less obvious parameters that can be set using rulers and styles. Press Shift-Ctrl-N, then click any button over the arrow to the right of the ruler name (Figure 2). A short menu will appear. Click on *Enter Values* and a new Dialogue Box (Figure 3) will open, which displays all the possible options that a ruler can affect. This box is for entry of very exact measurements. Although you can move margins and tabs along rulers using the mouse, you cannot set them to any great precision using this method. Using *Enter Values*, on the other hand, you can set tabs to tiny fractions of a millimetre. Of what use is this? You may well ask. To you and me, probably rather little, but to a typesetter, printing to an imagesetter for professional publications, the ability to set margins and tabs precisely is essential. Also on this menu is an option to delete a ruler.



A ruler placed above a document



The Ruler setup menu

NEW STYLES FOR OLD

Styles give you a wide variety of parameters with which to alter the appearance of text. Press Ctrl F5 (or click on *New style* in the *Style* menu) and you will be presented with the Style Editor ready to create a new style. At this stage most options will be unset (or 'don't care', as the Impression manual has it). To activate any of them, click on the appropriate button and set the parameter as you want it to be. You don't necessarily have to name a new style, since if you don't name it a name will be created for you based on font name, font size and justification, e.g. 'Trinity.Medium/10pt/Justify'. Even so, user-defined names are usually much more informative.

Look also at the bottom option in the Style Editor where you will find an editable field

for a keyboard shortcut. Click in the box and just press the keys that you want to use to activate the new style. The keystroke will appear in the box. Thereafter, repeating the keystroke while editing will apply the style. This is very useful, but be warned that the new style will take over from any previous function the keystroke was used for. The Ctrl/Shift/Fkey series from 1 to 10 are unused in Impression and can conveniently be used for your own styles.

OUT OF STYLE

This raises an interesting problem, if when working on a document you have created several styles and rulers, but not all of them have been used. You click on *Delete* in the Style Editor, and a message pops up to tell you that you can't because the item is used somewhere, but you can't remember where! So how do you find where you have used a style? A little deviousness is required. My preferred method is to set the font and font colour to something outrageous (like 20pt bright green), whereupon the style will usually be unmistakable. Such text needs to have the style removed or replaced before the style can be deleted.

It is a little more difficult to locate a lost ruler. The easiest way to do this is to highlight sections of text and look at the *Style* menu. The ruler will be dashed when it lies in the highlighted text. More deviously, you could turn it into a style by activating and altering font settings as above. Remember that a ruler is really only a subset of a style.

I hope you can now see how powerful styles are. If you have just finished that 500 page tome and want to alter its entire appearance, a quick click or two of the Style Editor and the whole document will reformat with no further effort.

That's all for this month. Next time, we'll look more specifically at the attributes and parameters that can be set using the style editor, and proceed to construct a real table using the Table Style (version 2.17 or later will help here). In the meantime, keep on writing to me, at Risc User, with your queries and suggestions for future issues.

News Flash ..... Ethernet and Econet ...

Get Teletext on all stations of an AUN network

The XOB teletext server is the only AUN compatible teletext server.
It will deliver teletext pages to stations on Econet and Ethernet networks, over bridges and through gateways.
The server is multi-tasking and RISC OS compliant. It features intelligent queueing and page buffering.
The terminal software is multi-tasking and RISC OS compliant on Archimedes series machines. It allows pages to be saved as sprites so that graphics may be incorporated in published reports. PAges may be saved as text as the basis for newspaper articles. Pages may also be saved in viewdata format.
Terminal software is also supplied for BBCB and Master series machines.

Site licence : £ 154.00 (ex VAT)
XOB, Balkeerie, Eassie,Angus, DD8 1SR Tel. 030 784 364

MORE EFFICIENT DISC COPYING

Tony Shew

Even with the improved disc copy routine in RISC OS 3, it is still sometimes necessary to swap discs more than once while copying. The copier grabs the contents of the *Next slot*, and since this is normally 640K (or less if there is insufficient memory available), a full disc (800K) will always need at least one extra disc change. Provided there is enough memory in your machine, setting the *Next* slot to 800K will enable a full E-format disc to be copied without extra changes. This can either be set up via the Task manager, or you can include the following line in your boot file to ensure the feature is always available:

```
WimpSlot -next 800K
```

CLOCK MONITOR SAVER REVISITED

Kell Gatherer

The monitor saver using Acorn's *Clock* application (*Hints & Tips*, RISC User 5:2) needs to be updated for RISC OS 3; the old version seems to be unstable under the new operating system. Make the following modifications to the new version of *Clock* (RISC OS 3 Applications disc 2): remove the ENDPROC from the end of line 240, then insert the following lines:

```
241 IF s% MOD 15<>0 ENDPROC
242 !q%=t%:SYS f,,q%:x0%=q%!12-q%!4:y0%=
q%!16-q%!8
243 q%!4=RND(1238-x0%):q%!8=RND(980-y0%)
244 q%!28=-1:q%!12=q%!4+x0%:q%!16=q%!8+
y0%:SYS e,,q%:ENDPROC
```

Now the clock window will appear at a different part of the screen every 15 seconds, reducing wear on your monitor.

CONVERTING BASIC PROGRAMS TO TEXT

David Spencer

A very quick way to convert Basic programs to text format on RISC OS 3 is to load the program into Edit, set the filetype to *Text* from the *Misc* menu and save the file again. The *Basic options* submenu on the icon bar can be used to control whether line numbers are stripped or not.

HINTS & TIPS

Don't forget to keep sending in your hints on anything relevant to the Archimedes range (RISC OS 2 and particularly RISC OS 3), and remember, we pay for all hints we publish.

RISC OS 3 PRINTING

Rolf Herschel

David Spencer's article *Printing with RISC OS 3* (RISC User 6:2) described the problem of installing the RISC OS 3 printer manager after a RISC OS 2 printer driver had been loaded. If you do a lot of swapping between two such drivers (as I do between a dot-matrix and a direct laser for example), you will find it a chore to go to the command line each time to kill and re-initialise the driver module. In this case, it is a better idea to incorporate the two relevant commands in the RISC OS 3 printer manager's *!Run* file, so that the module is automatically set up correctly every time the manager is installed. The commands must be inserted *before* the line which ensures the printer driver module; a convenient place is at the start of the list of RMEnsure commands. So the file *!Printers.!Run* will look like this:

```
........
RMKill PDriver
RMReinit PDriver
RMEnsure Printers.....
```

BUGS WITH BugBuster

David Spencer

Several commercial applications appear to generate an error if run when the *BugBuster* module from RISC User 6:1 is installed. This is not a bug in BugBuster, but merely the module doing its job and reporting an illegal memory access by the application itself. Many programs written in C accidentally write to address 0, which doesn't normally cause any harm, but will

be picked up by BugBuster. To stop the error occurring, use the **Unprotect* command before running the application.

SysCon IMPROVEMENTS

John Ferguson

The *SysCon* application (RISC User 5:6) is very useful for converting between SWI names and numbers. However, there is a trap for the unwary. The SWI call *OS_SWINumberToString* converts unknown SWI numbers to "User" or "XUser", rendering them 'lost'. This can easily happen if, for example, a Basic program using SWI numbers needs a module that's not currently in memory. Fortunately there is an easy fix. Just change or add the following lines:

```
    1270 IF errflag% AND namenum%=1 PROCrepo
rt("Program contains unknown SWI names")
    1272 IF errflag% AND namenum%=0 PROCrepo
rt("Program contains unknown SWI numbers")
    1502 IF name$="""User""" OR name$="""XUse
r""" THEN
    1504 errflag%=TRUE
    1506 ELSE
    1512 ENDIF
```

In the magazine disc version of the program, the line numbers are 1460, 1462, 1692, 1694, 1696 and 1702 respectively. A further improvement can be made to the program to allow for the conversion of hex numbers that use lower case a-f. This can be done by altering line 1760 (1950 on the disc version) to:

```
    =x%>47 AND x%<58 OR x%=38 OR x%>64 AND
x%<71 OR x%>96 AND x%<103
```

FontMax3 AND LARGE-SCALE VIEWS

Tony Moore

Advice usually given for *FontMax3* (maximum size of cached bitmaps) is to set it to the maximum text size that you use regularly in a document (e.g. 24 points). This is fine provided that the scale of view (i.e. zoom setting) is not greater than 1:1. However, if zoom is set to, say, 2:1, then the size of font actually used on the screen will be double the specified point size. In other words, you should set *FontMax3* to the maximum screen size, which is not necessarily the same as the point size in use.

SLANTING TEXT

Keith Powell

Previous volumes of RISC User used a very attractive slanting and shadowed style on the front cover for the words "RISC USER". I have found a method to emulate this style, which has improved my own letter heading dramatically. With RISC OS 3, the full effect can be achieved completely within Draw.

Taking the name "BRIAN BLOGGS" as an example, start by drawing a grey-filled rectangle as a background, then select a bold/oblique font. Type in the two words and rotate them until the verticals appear upright. Position them carefully in relation to each other, group them and copy the resulting object. Change the text colour of the copy to white, and position it over the original so that only a small portion of the black lettering is revealed. The grey background is important to enable you to see the outlines of the white letters. Figure 1 shows the result. You may need to convert the text objects to a path if you want to use the illustration in a package which does not support rotated text.

FONT PROBLEMS WITH OVATION

Ken Cowap

When using outline fonts with Ovation 1.35, an error message "Font cache full: print abandoned" can sometimes appear when the *Print* option is selected, even though the document has been displayed correctly and the font cache is known to have been set to a suitable value. The problem may be due to a faulty font and have nothing to do with the cache. It is unfortunately not uncommon for PD fonts to be in a somewhat unfinished state, often with many characters having zero width. Earlier versions of Ovation tolerated these to the extent of not issuing an error (though the characters in question did overlap others), but the current

version reports them, unfortunately a little out of context. The cure is to examine the font thoroughly with FontEd and make any necessary corrections. A quick fix is to copy the hard space character (ASCII 160) into any undefined character positions. This can be done from the main FontEd display window by dragging the box for the hard space (labelled NBSP) into any box in which the label is shaded, indicating an undefined character.

SAVING ICON BAR SPACE

Tony Shew

If you use a normal width Desktop mode, such as 12 or 20, precious space can be saved on the icon bar with RISC OS 3 by using short names for disc drives and printers, for example "HD4" or "IDE4" instead of "HardDisc4" or "IDEDisc4". Printer driver names can be changed to "LJII" or "BJet" rather than "LaserJetII" or "BubbleJet". Although changing the name of an existing hard disc may not be practicable because of reference in files to the disc name, it is worth remembering for any new hard discs purchased.

BIG PC PARTITIONS

David Spencer

Be warned that neither DOSFS in RISC OS 3, which allows you to access DOS discs and partitions directly, nor MultiFS will work with partition files greater than 32Mb in length, crashing with an error. However, larger partitions can be used if accessed directly via the PC Emulator.

Also, if you create a DOS partition file manually for whatever reason, it must be a multiple of &8800 bytes long to work properly.

SETTING THE CSD WITH DeskStar

Keith Vernon

The *DeskStar* application (RISC User 5:1) is a powerful Desktop organiser and is probably a permanent resident on many icon bars. One small feature that can easily be added is to use the DeskStar message system to set the currently selected directory (CSD). The following lines should be added (lines 2310-2340 are very similar and can be copied and edited):

```
    2342 REM make dragged directory the CSD
    2343 IF (b%!40)=&1000 AND b%!24=dih%)
THEN
    2344 dir$=FNGetZeroTermStr(b%+4)
    2345 OSCLI("Dir "+dir$)
    2346 SOUND 1,-15,200,1
    2347 ENDIF
```

When a directory is dragged to the icon bar icon, the CSD will be set and a short acknowledging sound given.

ICON RENUMBERING IN FormEd

Rolf Herschel

There is a trap for the unwary when using FormEd (both versions) - if you alter the parameters of any icon in a window, including its bounding box co-ordinates, FormEd will automatically renumber the icon if there is a lower icon number not currently in use (i.e. an icon has previously been deleted but its number has not yet been reassigned). This can lead to problems when you run the program if you fail to spot it at the time of editing the template and assume the icon numbers are the same as they were when you created them.

Points Arising ...

THE GAME OF STEALTH
VOLUME 6 ISSUE4

Because of problems encountered late in the development of this application, the version supplied on the magazine disc differs in some respects from the details (and illustration) on the Disc Contents pages.

FONTMASTER
VOLUME 6 ISSUE 4

When using this application an "End of file..." error message can occur. For the application to function correctly delete the file !FMaster.Fontlist from the disc.

OPEN FILE MANAGER
VOLUME 6 ISSUE 5

There is a small bug in line 820 (880 in the disc version) which results in a possible error if more than one file is open. The program can be corrected by changing the '28' in that line to a '24'.

SCHOOL CHILDREN PROVE THAT NEW BYPASS WILL DAMAGE THE LOCAL ENVIRONMENT

EXCLUSIVE BY MATTHEW DAVIES

USING an innovative new program on their classroom computer children from St. Chad's School have shown town planners that a proposed new bypass would have a detrimental effect on their local environment.

The children surveyed the local area and fed details into their Topographer program, which allows them to look at the relevant area in 3D. They then added the new road along its proposed route and it became obvious that the road would not only affect an area renowned for its badger population but would also distract children in classroom as they would able to see traffic mov along the new road.

The children even wen far as to propose a new r for the road to the t planners. The proposed r would have a neglig impact on the area but provide the much needed to existing roads.

A SERIES of sweeping proposals which would abolish free parking in district shopping centres, change some bin collections, increase lettings charges and scale down mileage claims by some council officers, have been announced by Labour.

In the first indication of their intentions si seizing power jointly with the Conservati party has produced a h 1,000 ' ser

● REDUCING mainte

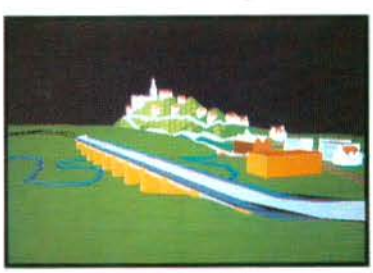
Other econ departmental b cutting scho fees.

Th

Topographer is a major application for the Geography curriculum which allows children (and teachers) to have lots of fun whilst learning all about maps, contour lines, valleys, rivers etc. In fact *Topographer* covers virtually all items found on a map.

The real break through with *Topographer* is its 3D section which allows you to convert a 2D map into a 3D model on screen. Imagine turning a set of flat contour lines on a 2D map into a 3D model which clearly shows the hill — no more cardboard cut out models or papier mache! You define where you look from, and what you look at.

Topographer also covers aspects of the IT and maths curriculum with its modelling capabilities. Just stop for a minute and think of the projects that you could do with *Topographer*. You could make a map of the local area with churches, pubs, woods etc. and then view it from various places. If there is a bypass proposed you could add it in to the existing landscape and see where it is visible from and what impact it is likely to have on the community. I'm sure you can think of a hundred and one topics.



◆ Fully RISC OS 2 & 3 Compliant and 1 megabyte friendly ◆ Suitable for all ages from 6 onwards ◆ Easy and quick entry of all symbols (over 100) ◆ Wooded areas which translate into impressive 3D landscapes ◆ Definable map size and scale which can be linked to the national grid references ◆ Powerful 3D mode giving a true representation of the landscape ◆ Stunning 3D models which can be saved as a sprite file for use with other applications.

£79.95 inc. VAT

All specifications subject to alteration without notice

AVAILABLE • APRIL 1ST 1993

CLARES

We accept Access and Visa.

98 Middlewich Road, Rudheath, Northwich, CHESHIRE CW9 7DA. Telephone: 0606 48511 Fax No: 0606 48512

WRITE - BACK

TECHNICAL MATTERS

In the first few years of RISC User the magazine was packed full of technical hints and articles on programming and using the Archimedes. During these years you received and published numerous letters from beginners asking for more on the basic side of computing. I do agree that this form of information is necessary in moderated amounts.

Unfortunately you seem to have taken this to an extreme, as this month (Volume 6 Issue 4) there was not a single programming article or any other technical aspect to do with Acorn computers. The closest we got was the **C Notebook** *column. While I agree that this is a very good section of the magazine, it doesn't really fill the large void that has appeared since columns such as* **Using ANSI C** *and* **Programming the Wimp** *disappeared. I do often wonder why these columns did in fact finish when they did, as I can think of a whole multitude of topics that could have been covered.*

With your continued assurances in your editorial and Write-Back columns that you will be doing more to help the beginner, the future certainly looks bleak. The main reason why I subscribed to RISC User back in 1988 was for its technical information. However, now that this has almost completely disappeared my continued support seems in doubt, which is a shame as I do quite like the style of your magazine.

Richard Lancaster

Any magazine editor has the task of balancing the often conflicting interests of his readers. It was and still is true that we get strong feedback asking for more support for beginners. We have tried to reflect the balance of views received in the contents of RISC User. We also need to provide variety of content over a period of time. However, Mr. Lancaster and others may be pleased to know that we are planning a new series of articles on Wimp programming (due to start next month), and are also considering expanding our coverage of C. With the new format and more editorial space, we will be aiming to satisfy all readers with RISC User's unique mixture of technical and user-oriented coverage.

COMPARATIVE REVIEWS

I always read the software reviews in RISC User (e.g. **Imagery** *in Volume 6 Issue 3), and so I am aware of the existence of the many applications for RISC OS machines. As an educational user I am often asked if I can recommend various packages, and all I can do is to make suggestions. As there is so much software on the market there is a real need for comparative reviews of the front runners in each field (e.g. art, music, word processing, etc.). It does need to be done by someone who is an extensive user in the field in question.*

J.R.Watkinson

While new software continues to proliferate there is obviously pressure from within the magazine's pages to ensure up-to-date coverage of new products. As the Archimedes market matures so there is more opportunity **and reason** to consider more comparative surveys of some groups of products, and we are already planning to do this in future issues. In any case we always ask our reviewers to make some comparison between a new product and those already established in the same application area.

ENGINE ANIMATIONS

With reference to the letter from Mr.Evans in RISC User 6:3 regarding applications to demonstrate the workings of engines, I have written a program for the 4-stroke engine, and have been using it with my own pupils (13 - 16 year olds). It can be stepped one stroke at a time or run continuously.

Omer Roucoux

We have passed details on to Mr.Evans. If other readers wish to contact Omer Roucoux then they can do so via the RISC User address.

PIPEDREAM VERSUS EUREKA

In Alan Highet's review of Eureka, one point made about Pipedream has been overtaken by events, and not quite the whole story was told.

First, the recommended retail price on Pipedream 4 has been reduced to £129 ex. VAT from the "around £210 inc. VAT" quoted.

Second, comparison was made of recalculation times in Eureka and Pipedream, and it was claimed on the "subjective" tests that Eureka is faster. Our tests, using the standard Liardet benchmark test, indicate that the two are about equal, and both significantly faster than Schema. However, Pipedream uses background recalculation, while Eureka (like Schema) recalculates in the foreground.

Thirdly, while you mention that Eureka can only print using the graphics printing of the RISC OS printer drivers, Pipedream's own printer drivers use the system font on screen, and print using fast character printing.

Rob Macmillan, Colton Software

As always we are pleased to publish any useful response to RISC User reviews. The drop in price of Pipedream 4 is, I am sure, to be welcomed. Readers may also be interested to know that Rob Macmillan says that Wordz v1.03 now supports a hot link to RISC Developments Desktop Thesaurus, and says "They work nicely together".

COMMS IN HOLLAND

I read your article Your Archimedes on the phone (in RISC User 6:4) which mentioned the Acorn program from Holland. I am a satisfied user of this program. It emulates a variety of terminals, and supports both UK and Dutch viewdata protocols for software downloading. Till CLib 3.50 there were no problems. With CLib 3.60 and later start-up failed. Because no update has been available, I have continued to use Acorn by configuring the !Run file to load CLib 3.50 before loading Acorn, and to reload CLib 3.75 at the end. With RISC OS 3 everything works correctly if I don't use applications at the same time which need a later CLib.

I think it is a pity that the Acorn program is not better known, because it was one of the first to use RISC OS 2 fully.

Joop Brandes

Any updates on the state of Acorn will be welcome.

PSION INTEREST

I would like to support Andy Austin's request in the April 1993 issue of RISC User (6:3) for an early review of the Psion MC-Word. If it was possible to exchange files between this machine and the Archimedes it would be extremely useful portable adjunct to the Archimedes. I acknowledge your remark that RISC User is primarily an Acorn related magazine but I don't think you should ignore other manufacturers' offerings, particularly if there is a possibility of their extending the Archimedes' usefulness at a reasonable price.

The price, of course, is an important consideration. Many of us would love to have an A4 but the absurdly high price of this machine puts it way out of our reach. Equally, the toy-like nature of the Pocket Book makes it impractical even for something like keeping a holiday log to be transferred to an Archimedes at home.

Please don't bury your heads in the sand; you have spent a lot of magazine space on explaining about MS-DOS etc., and on how to turn an Archimedes into a PC-compatible computer. It is now time to report on the possibility of using the Psion as an Acorn-compatible computer.

A.G.Cliff

RISC USER, more than many Acorn related magazines, has sought to cover the Acorn Pocket Book and associated Psion Series 3. Neither of these is compatible with the Archimedes in that the Pocket Book/Series 3 uses a quite different operating system and file formats. Our reasons for covering the devices is because of the Acorn angle, and the fact that the A-link permits files to be transferred between portable and Arc. If we can determine that there is a readily available way in which the Psion MC-Word can be similarly used then we would certainly consider reviewing this product. In any case, we will continue to cover the Pocket Book/Psion Series 3 as far as it relates to Archimedes users.

WHAT'S A ROBIN RELIANT?

Either I am abysmally ignorant even in the New Zealand context, or Neil Burgess is rather insular in his comments on page 33 of the March RISC User (6:4). What the heck is "a standard Robin Reliant"? I got the purport of the message with the "200mph" since I am old enough to remember that archaic speed measuring system ('mph' is really a no-no for those of us in fully decimalised and metricised countries). Contributors (and Editors) please remember that RISC User goes worldwide.

J.M.A.Brown, New Zealand

Thanks for the reminder. The bulk of our readers are based in the UK, but there are a substantial number in countries throughout the world, something we should all remember. As for the Robin Reliant, I am not sure these days that even all readers in the UK remember this slow and ungainly three-wheeled car!

PIN BOARD

MAIL ORDER PROBLEMS

RISC User reader Rob Helson wrote to us recently regarding problems he had encountered over a mail order purchase with a software company. Briefly, software purchased mail order had failed to come up to expectation, but the company involved had refused any refund. Mr.Helson advised us of his situation and asked for any guidance.

While it is imprudent to comment on any individual case without full knowledge of the facts, it is our belief that the law allows any mail order customer to return goods so purchased for a refund within 28 days, provided that the goods are in a saleable state. Some deduction may be made for 'wear and tear' if appropriate. In the event of any dispute, we recommend that the nearest Trading Standards Officer be contacted, who will if necessary take up a case on the customer's behalf. In addition, if goods are bought mail order on a credit card then you may be able to claim against the credit card company, who are deemed liable under English law.

WARNING: STOLEN GOODS

Chris FitzHugh of Nottingham writes:

Last Friday I was burgled and had my computers etc. stolen. In case you come across second-hand equipment may I give you the particulars:

Archimedes A310 (RISC OS 3 + 4Mb upgrade)

Serial numbers:

AKB15-1004955 (main unit)

AKF11 1003083 (monitor)

3129523541 (H.P.Deskjet 500 printer)

Ground Control Teletext Adaptor

If anyone comes across any of this equipment please phone the RISC User editorial office, and we will inform Mr.FitzHugh.

The Ultimate Expansion? (continued from page 13)

six pages long and conveys no useful information other than that the User Port can be used to connect a Concept Keyboard. The latter is eight pages and does explain to an extent how to use the IDE Manager.

The digitiser's documentation is a straight text file that covers operation in reasonable detail, whilst no documentation at all was supplied for the SCSI interface, despite a phone call to HCCS to try and get some.

CONCLUSION

HCCS has come up with a revolutionary and innovative product which is well produced. The Ultimate system provides a good way for users to achieve what should be impossible for their computers. Not only that, but the prices asked are extremely reasonable, with the bare motherboards starting at less than £40.

One point to note though is that this is HCCS' own proprietory standard. It is not an Acorn one. While the Ultimate system should fulfil most of your requirements, particularly on machines like the A3010 where there is really no other choice, I wouldn't rely on companies other than HCCS producing compatible micro-podules, as past experience shows that people are reluctant to follow standards set by their rivals.

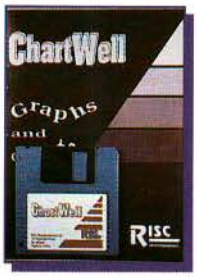
Product *Ultimate Expansion System*

Supplier *HCCS Associates Ltd.*
575-583 Durham Road,
Gateshead,
Tyne and Wear NE9 5JJ.
Tel. 091 487 0760

Prices *Motherboard with User Port*
£41.70 ex. VAT
As above but with 20Mb hard drive
£220.43 ex. VAT
As above but with 60Mb hard drive
£245.96 ex. VAT
SCSI Micro-podule £69.00 ex.VAT
Digitiser Micro-podule £129.00 ex. VAT

These prices are for the A3010 system reviewed. Contact HCCS for other options.

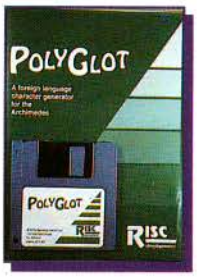
ChartWell



ChartWell is a comprehensive but easy-to-use chart and graph package providing bar charts, pie charts, line graphs, scatter graphs and polar plots with a wide variety of types and many user selectable features. Import data from other files in standard formats; export in Draw file format. Flexible data selection and ordering; useful 'save options' feature.

Members' Price
£24.95 inc.Vat

Polyglot



This is a highly flexible package which can be readily customised to the needs of the user. PolyGlot allows you to access all the characters not normally found on the keyboard from simple user defined windows; ideal for word processing, DTP work etc. in foreign languages. Can also be used for other groups of special symbols (e.g. mathematical). Full printer support.

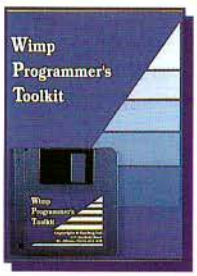
Members' Price
£14.95 inc.Vat

ArcScan III

ArcScan is a well established computerised indexing system. ArcScan III comes complete with indexes to all Acorn manuals (including the new RISC OS 3 Programmer's Reference Manual). Separate Library discs cover Acorn User, Acorn Computing, Archimedes World, RISC User, BEEBUG (upgrades available).

Members' Price
ArcScan **£12.95**
Library Discs **£7.95**
prices inc.Vat

Wimp Programmer's Toolkit



This is a collection of 12 multi-tasking applications to assist in the development and debugging of Wimp programs written in Basic. Ideal companion to the book Wimp Programming for All.

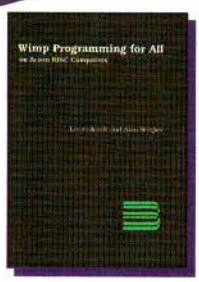
Members' Price
£14.95 inc.Vat

File Handling for All by David Spencer and Mike Williams

This book covers in some detail all the principles and techniques required to program file handling applications in Basic including sequential files, indexed files, file and record pointers, search and sorting.

Members' Price
Book **£9.95**
Disc £4.75, Book + disc £11.95

Wimp Programming for All by Lee Calcraft and Alan Wrigley



This book provides a comprehensive introduction to the many details of Wimp programming in Basic, dealing with the Wimp poll loop, windows, icons, menus, file transfers, outline fonts and much more.

Members' Price
Book **£12.95**
Disc £4.95, Book + disc £14.95

Into the Arc: Understanding the jargon

by Mike Williams

All areas of human interest have a tendency to develop their own specific jargon, and computing is certainly no exception. Not only that, but each computer system (PC, Apple, Archimedes) and operating system (MS-DOS, System 7, RISC OS, Unix, etc.) also encourages users to 'speak' in a foreign tongue. No wonder newcomers to any computer often feel baffled.

There are sometimes moves to do away with jargon, but it is useful to have an agreed set of terms by which we can communicate. Thus learning basic terms relevant to your computer or operating system is the route to greater understanding and expertise. Moreover, it is not just the words which are important, but the ideas and concepts to which they refer.

I thought that in this month's *Into the Arc* I would try to present a basic Archimedian vocabulary, with explanations, for the benefit of newcomers. The problem is to know where to start: do I assume some computing knowledge, but no prior exposure to Acorn's RISC machines, or do I assume no knowledge of computing at all? To be realistic, and not take up the entire magazine, I have decided to concentrate more on those terms which are specific to the Archimedes range, or which have an Archimedian flavour to their meaning.

I will assume that you have already learned some of the key features of your system: the *Desktop* as the name of the usual screen display, with a bar across the foot of the screen. This is the normal working environment. The Desktop is managed for you by a built-in program (the *operating system*) called *RISC OS*, now release 3.1. The bar, known as the *icon bar* has some symbols (or *icons*) on it, some to the left and some to the right. Similarly, I assume that you know the standard names used for the three mouse buttons, *Select* (left), *Menu* (middle) and *Adjust* (right). The mouse (and *pointer*) is used for *selecting* (also called *clicking*) and *dragging* objects on the Desktop.

For example, depending on your system, the icon bar will show (to the left) icons for a *floppy disc* drive, and if fitted a *hard drive* (floppy discs come in a hard plastic case, but don't be fooled - if you carefully slide back the metal shutter, you will see the *floppy* disc inside - inserting a floppy into a drive causes the shutter to open automatically, so that the disc can be accessed by the computer). Insert a floppy into the drive (Applications disc 1 or 2 will do), and then point and click on the drive icon using the Select button. A *window* opens on the screen, and within it there will probably be further icons showing you what is on that disc. This type of window is called a *directory display*, also known as a *Filer window*, as the *Filer* is that part of RISC OS which manages all file operations (like copying, deleting, counting, creating files and directories).

Pointing and clicking at any of these icons inverts its colour showing that it has been selected. Most windows have a *title bar* for identification of that window. Windows are moved around the screen by *dragging*, that is by pointing at the title bar, so that the end of the pointer is within the area of the bar, and then holding down the Select button while moving the mouse.

Dragging can be used for various functions, and often involves moving an object from one place to another on the Desktop. If you drag something too quickly, the object being dragged lags behind the pointer. Dragging any complicated object uses a lot of computer power, so in many cases only

an outline of the object is shown until you release the Select button, whereupon the computer redraws the object for you in its entirety. The choice of solid or outline drags can be determined using the Configure application as described in last month's *Into the Arc*.

Clicking is also important, and there are several variants that are possible. The commonest are single-clicking (already mentioned) and *double-clicking*. While double-clicking may sound very obvious (two reasonably quick depressions of the Select button), some users find this quite difficult at first. It is also important to keep the mouse stationary while double-clicking, or some other unexpected action may result.

If we return to the directory display referred to before, we can look at the different types of object which it contains. Generally, an object with a name beginning with a '!' is an *application*. Essentially this means that the object contains a computer program which can be made to perform some task for you, often quite a complex one like word processing, or a spreadsheet application.

When an application appears in a directory display it means that it is stored on the relevant disc. If you want to use an application, it has to be loaded into the computer's memory. This is accomplished by double-clicking on the application's icon. Often (but not always) this will result in a similar icon appearing on the icon bar, showing that the application has been *loaded* or *installed*. It still may not do anything - many applications, once loaded, can be started by clicking on the *icon bar icon* (quite a mouthful, but also quite explicit). At that point you need to refer to any instructions for that particular application. Once an application has been loaded, the original disc can be removed. However, when you switch off your computer, anything loaded into it will be lost, and so you have to repeat the loading sequence for each session.

There are two other possible kinds of object in a directory display. The blue *folders* are exactly that. Double-clicking on a folder (known as a *directory*) will open it showing in a further directory display the contents of that folder. Folders can contain folders which... Folders (or directories) are very important in organising the way in which you can store information on disc.

If an object in a directory display is neither an application nor a folder, then it has to be a *file* of some kind. This article was originally created as a *text file*. *Draw files* and *sprites* are other common examples of files. Files mostly can't do anything by themselves but must be used in conjunction with an application, a text file with Edit, a sprite file with Paint, a Draw file (obviously) with Draw, and so on.

If you are new to the Archimedes, this article should have given you some idea of the most commonly used features of this system and their names. In many instances we have only scratched the surface: but a detailed description might only serve to confuse rather than help. What I have tried to do is to present a basic set of terms and features with which everyone should be familiar. If you think there are any important omissions then let me know.

Adjust button	Operating system
Application	RISC OS
Desktop display	Select button
Directory	Sprites
Directory display	Text file
Draw files	Title bar
File	Window
Filer window	
Floppy disc	Clicking
Folder	Double-clicking
Hard disc	Dragging
Icon bar	Installing an application
Icon bar icon	Loading an application
Icons	Selecting
Menu button	
Pointer	

RISC OS terms described or referred to in the article

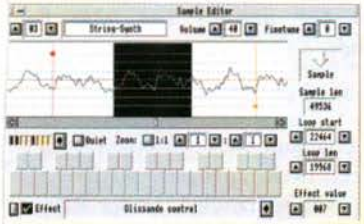
Digital Symphony

The Soundtrack Editor offering

Unrivalled Power

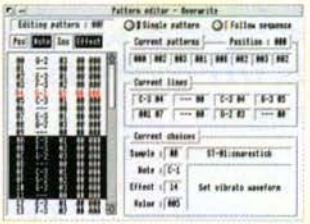
and without doubt the most

Advanced Features



Built in Sample editor, allows you to Cut and Paste parts of the sample. You can try out any of the 40 different special effects, and define a repeat loop by dragging visual markers.

Powerful, deadly accurate, Realtime Monitor, displays Digital Score Data, Vu Bars and Instrument Waveforms.



The Pattern Editor, used in conjunction with the Musical Notation score display, makes editing a track very easy. Once created each pattern can be slotted into the sequence, wherever you wish. Cut and Paste, Copy, Transpose, Exchange, etc... facilities are offered to enhance flexibility.

Perfect ProTracker Implementation · MIDI Compatible
Compressed Saving · 4096 Patterns · Score Display
Maestro Conversion · 40 Special Effects
100% ARM Code · OctaMED Import

£49.95 INC

Upgrade from Tracker, and Save 20%. Phone for details.

Oregan DEVELOPMENTS

Oregan Software Developments
36 Grosvenor Avenue, Streetly,
Sutton Coldfield, B74 3PE.
Tel: 021 353 6044

Send a Formatted disc, and a 1st class Stamp, for a Free Demo copy of either Package.

Archivist

£29.95 INC

Cards are created with the Designer part of the package, a new form can be designed simply by selecting fields, and dragging them to their required position.

Text, Integer, & Real field types can be set,in addition to multiple format Date fields, and Formula fields with user definable equations.

Alterations, for example - extra fields can be added to a card, even if you have started inputting data, and no data will be lost.

Archivist is able to store and display or play Textfiles, Sprites, Drawfiles, Maestros, Samples and Soundtracks.

Archivist can be interrogated using either of two search routines, Easy Search gives you a duplicate copy of the card, you type the variable to be searched for in the appropriate field, and Archivist does the rest.

For those requiring a little more flexibility, a complex search equation can be built up using mathematical, and Basic Operands.

Of course, Archivist also provides a Search and Replace facility, plus a fast Primary & Secondary Sort routine.

A Clipboard, allowing cut and paste operations, and a user definable Quick Entry routine, speeds up data entry into Archivist considerably.

Card Print allows printing of cards in WYSIWYG format, using of course the standard Outline fonts. (2 supplied)

Reports generator, allows your data to be presented in a tabular form. Archivist also has a specifically designed Label Printer for your Names and Addresses files.

Archivist files are saved compressed to save valuable disc space, and with a Password for privacy if required.

Archivist can automatically produce CSV files, with the option to create Graphbox headers. Also it is possible to save data as a textfile for export to DTP's etc.

Statistics window displays the Averages, Minimums, Maximums and Totals of each field for the entire database.

Archivist is able to Import files from many existing databases, on the Archimedes, as well as the BBC and PC.

Existing Version 2 users can upgrade to Version 4.70 for just £5, when returning the original disc.

Powerful Database

? TECHNICAL QUERIES

Alan Wrigley answers your questions on resident variables, validation commands, DTP documents and SWIs in event routines.

Q *Dear Sir*
I have seen multi-tasking programs which use variables such as A%, B% etc. I thought these were resident variables - how can they be used by multi-tasking programs without the risk of other programs altering them?
Dave Worthington

A It is true that A%-Z% and @% are described as resident integer variables. They have their origins in the old BBC micro, but the way these are handled in a multi-tasking environment is very different. In the BBC (which was of course single-tasking), an area of the operating system's workspace was dedicated to storing the values of these variables, and hence they were genuinely resident. The values were maintained from one program to the next unless explicitly altered. Basic under RISC OS works in a different way. Although there is only one Basic module, a separate area of workspace is allocated for each and every Basic program that is run. It has to be done this way, otherwise no Basic program could ever multi-task. A section of this workspace is allocated for the resident integers, and so each program can maintain its own set of values. This means they are no longer "resident" in quite the same way. They are still slightly faster to use, they don't need initialising (so there are no "unknown variable" errors), and their values will survive commands such as LOAD and RUN, and will be retained even if the program in memory is edited. However, for most purposes meaningful variable names are preferable.

Q *Dear Sir*
You recently described how to use the R validation command in RISC OS 3 to produce 3D icons. Could you please also explain the use of the new K command?
Keith Vernon

A The K command allows you to specify how certain keypresses within a writable icon will be handled. Under RISC OS 2, keypresses were handled as follows: all printable characters were inserted directly into the icon text; editing functions within the icon were carried out automatically (e.g. left and right cursors, Delete, Ctrl-U); and all other keypresses were notified to the application. This action remains the default under RISC OS 3, but by using the K command you can alter the functionality of certain keys. The command is followed by a second parameter: R, A, T, D or N. These parameters can be combined in one command, for example "KATN".

If R is specified, pressing Return within that icon will move the caret to the next writable icon in the window, unless the current icon is the last one, in which case Return (ASCII 13) will be passed to the application.

The A parameter is used to force the up/down cursor keys to move the caret to the previous or next writable icon respectively, wrapping round if the current icon is the first or last. Thus A and R taken together implement Acorn's recommended guidelines for the operation of writable icons in a dialogue box, without the task needing to do any of the work that it had to do before.

The T parameter forces the Tab key to move the caret to the next, or Shift-Tab to the previous, writable icon. Unfortunately there appears to be a bug in the A and T routines. According to the PRM, with the A command the caret should retain the same position in the string as before when the up/down cursor keys are used, while with

the T command the caret should move to the beginning of the next icon on pressing Tab. However, in both cases it seems that the caret always moves to the *end* of the string, making the two functions identical.

Finally, D causes the application to be notified if Copy, Delete, Shift-Copy, Ctrl-U or Ctrl-Copy are pressed (though the default actions for these keys are carried out as well), while N forces the Wimp to notify the application about *all* key presses, even if they are also handled automatically by the Wimp.

Q *Dear Sir*
Most of my Ovation documents are prepared using a standard letter heading. Is there any way that I can load the heading automatically whenever I start up Ovation, without having to open directory viewers to find it?

Rachel Collin

A Not only can you do this with Ovation, but with virtually any other editor-type application. Just load the application's *!Run* file into Edit and look for the following line (usually the last):

```
Run <appname$Dir>.!RunImage %*0
```

where *appname* is the name of the application. Replace the "%*0" with the full pathname of your header document, and save the file. Now the document will be loaded and opened on the screen automatically whenever you install the parent application.

Q *Dear Sir*
I am writing a module which claims the event vector to detect mouse movements, but I am plagued by a problem which sometimes causes the computer to crash. I have narrowed it down to a SWI call within the event routine - when I remove it, everything else works perfectly, but I'm sure I'm making the call correctly. Can you help?

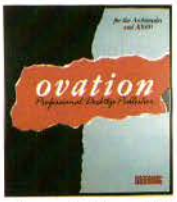
Kevin Powick

A Event handlers are similar to interrupts in that there are certain restrictions placed on what you can do inside an event routine. One of these restrictions is that many SWI calls cannot be used. This is because they are what is termed "not re-entrant". Since interrupts and events can happen at any time, irrespective of the program currently being executed, it is quite possible that a call to an event routine could interrupt the processing of a SWI call elsewhere. Many SWI calls need temporary workspace, so if your routine happens to call that SWI, or another which uses the same workspace, the original contents will be overwritten. When the routine returns, the original SWI call will carry on from where it left off, unaware that it can no longer rely on data previously stored in the workspace, often resulting in a crash. Such a SWI is therefore not re-entrant. The description of each SWI call in the *Programmer's Reference Manual* tells you whether it is re-entrant or not; if not, you cannot use it in an interrupt or event routine.

Fortunately, RISC OS provides a way around this, using what is known as a *callback*. During your event routine, you must notify the operating system that you want to be called back when it is convenient, to enable you to carry out further actions which cannot be done within your event handler. To do this, you use the SWI *OS_AddCallBack* (which *is* re-entrant of course!) with the address of the routine to be called in R0. R1 should contain whatever value you want to be in R12 when the callback is made - in other words, you would normally place your workspace pointer in R1 so that when the callback routine is called, the pointer will be in R12.

The callback routine will be entered as soon as it is safe to do so, and the routine can then carry out any actions which were impossible to do in the event handler. You should also use the callback method if your interrupt routine would take a long time to execute.

RISC Developments' Software



Ovation
DESKTOP PUBLISHING

Ovation is the easy-to-use desktop publisher used on thousands of sites in education, home and business across the country. Now, in response to customer feedback, it has been enhanced with many new features, setting even higher standards of quality and value. Ovation is packed with professional features, yet remains easy-to-learn and instinctive to use. It provides a complete solution for all document generation; from simple single page letters to entire books with diagrams and scanned images.

Try before you buy!

A working demo is available for only £5 (inclusive), which is refundable against a future purchase of Ovation. This version has no Save or Spellcheck facilities. Please write or phone for our detailed Ovation brochure.

Members' Price: **£98.88**

Desktop Thesaurus
SYNONYM FINDER

Desktop Thesaurus is a superb companion for all desktop publishers and word processors. It has been recently expanded, and now contains over 17,250 keywords and nearly 182,000 carefully chosen alternative words. The synonyms for the required keyword are listed in a scrolling window according to parts of speech, so nouns, verbs etc. are grouped together. Clicking on any synonym itself then selects that word as a keyword and displays its synonyms allowing you to browse through the data looking for the ideal alternative word. When you have located an alternative word, it may be transferred instantly into almost any application for you.

A special hotlink is provided with Ovation, but it is ideal for use with other packages such as Edit, Impression, Pipedream, 1st Word Plus etc.

Members' Price: **£18.98**

TypeStudio
FONT MANIPULATION

TypeStudio is a complete text manipulation package ideal for producing professional quality adverts, posters, banners, logos, letterheads etc. Drawing tools allow lines and curves to be drawn to create almost any shape, along which text can be flowed. Pairs of lines may be linked to create shapes into which text and Draw files may be moulded. A range of special effects are available, including: shadow, slant, 3D and mirror.

Features include:

- Flow text along straight and curved paths
- Mould text and Draw files to shapes
- Wall, floor and graduated shadows
- 3-D, mirror, slant and plinth effects
- Save in internal and Draw file format
- Print using RISC OS printer drivers
- Import Draw files as moulds
- Copy, rotate and magnify
- Grid and zoom facilities

The package includes 7 fonts and a 64-page user guide containing worked examples.

Members' Price: **£44.94**

HP500/550 & Star Drivers
PRINTER DRIVERS

The Printer DJ printer driver produces near laser quality output from the highly acclaimed Hewlett Packard DeskJet 500C and 550C colour printers. Both release 2 and release 3 drivers are supplied for each printer, each supporting 75 x 75, 150 x 150 and 300 x 300 print resolutions in monochrome, grey scale and full colour modes. PrinterLC is the approved printer driver for Star colour dot-matrix printers. It is suitable for both 9 and 24-pin printers including: LC24-200, LC-200, XB24-10 and LC-10. PrinterLC is a release 2 driver, supporting print resolutions from 60 x 72 dpi to 360 x 360 dpi depending on the printer model. Also suitable for many Epson and NEC colour printers.

Members' Price: **£14.98**

RISC developments

RISC Developments Ltd.
117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 40303 Fax. (0727) 860263

All Software is available from good dealers or direct from RISC Developments. Prices include VAT but please add carriage of £3.00 for Ovation and £2 for other software. Please write or phone for details of educational prices and site licences.

RISC Developments Software

Masterfile 3
DATABASE MANAGER

Masterfile version 3 is the latest development in the best selling family of database programs for Acorn systems. It is fast, simple to use and provides powerful data management facilities suitable for home, education and business use. Included amongst its many features is a very comprehensive indexing system allowing data to be accessed in any order. In addition, subsets may be created allowing access to just those records that match the search criteria. Both indices and subsets are updated automatically when records are added, modified or deleted. The report generator allows databases to be printed in card or spreadsheet form, and provides full label printing facilities. To trade-in an earlier version of Masterfile, please return your original disc to the address below, and deduct £5 inc VAT from the price. Only one trade-in allowed per order.

Members' Price: **£48.94**

Hard Disc Companion
HARD DISC BACKUP

Version II of Hard Disc Companion offers superior performance and efficiency. It has been completely re-written and is now twice as fast and even easier to use.It provides a structured approach to the backing up of hard drives, and the recovery of files in the event of disc failure or accidental file deletion. Both Full and Incremental backups are supported, and the files to be backed up or ignored may be specified using simple drag operations. The entire backup specification may be saved in a script file for use at a later date. Hard Disc Companion II uses an efficient compression system to backup as much data as possible onto the floppies without increasing the backup time. Separate applications are included to restore entire backups or just selected files.

Members' Price: **£44.94**

Hearsay
COMMUNICATIONS

Hearsay II is the most advanced communications package available for Acorn systems. It is multi-tasking and fully RISC OS compliant and is designed for easy communications for the first-time user, but with a wide range of advanced features making it the professionals choice. Hearsay is ideal for use with Prestel, Telecom Gold, Campus 2000 and Compuserve, and also provides very high quality VT320, VT102, VT52 and Tektronix 4105 Colour terminal emulations for direct connection to mini and mainframe hosts. In addition it gives access to Minitel systems such as the Teletel service and provides Xmodem, Ymodem, Zmodem and Kermit file transfer, a comprehensive script language, an auto-dial number directory and drivers for most popular modems. Please write of phone for detailed specification.

Members' Price: **£74.91**

PlayBack
MOUSE RECORDER

PlayBack allows recording in real-time of all mouse and keyboard operations as they are carried out. This new package will produce intriguing and eyecatching displays that will be of interest to home, education and business users as well as for training. It is an ideal tool for creating demonstrations or testing programs which run in the desktop. During desktop operation, all mouse operations and key presses may be recorded and saved to file. On playback everything will happen in exactly the same way, with the pointer following all the recorded movements, and text appearing on the screen as if typed from the keyboard. A synchronised text commentary maybe added, and recordings may be converted to ASCII format for editing. A play-only version is supplied which may be freely distributed with recordings.

Members' Price: **£18.98**

RISC developments

RISC Developments Ltd.

117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 40303 Fax. (0727) 860263

All Software is available from good dealers or direct from RISC Developments. Prices include VAT but please add carriage of £3.00 for Hearsay and £2 for other software. Please write or phone for details of educational prices and site licences

Subscription

RISC User is available only on subscription at the rates shown below. Subscribers to RISC User may also take out a reduced rate subscription to BEEBUG (the magazine for the BBC micro and Master series).

Subscription Rates	RISC User Renewal	RISC User New	RISC User & BEEBUG
UK, BFPO, Ch.Is	£18.40	£19.90	£28.90
Rest of Europe &Eire	£27.50	£29.00	£42.90
Middle East	£33.50	£35.00	£53.10
Americas & Africa	£36.50	£38.00	£58.40
Elsewhere	£39.50	£41.00	£62.50

Please note that new subscription rates are £1.50 more than renewals.
All subscriptions, including overseas, should be in pounds sterling.
We also accept payment by Connect, Access ,Visa, Switch and official UK orders are welcome.

Magazine Disc

The programs from each issue of RISC User, together with a number of substantial additional items, are included on a monthly 3.5" disc. This is available to order, or you may take out a subscription to ensure that the disc arrives at the same time as the magazine.

Disc Subscription Rates	UK	Overseas
Six months subscription	£25.50	£30.00
Twelve months subscription	£50.00	£56.00

Disc subscriptions include postage, but you should add the appropriate rate (see below) per disc for individual orders.

Back Issues

Last month's special offers on back issue discs and magazines are being maintained. All issues are currently still in stock except Volume 1 Issues 4&5 magazines. All subject to availability. Please include postage when ordering.

	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5
Magazine	£1.00 each	£1.20 each	£1.60 each	£1.90 each	£1.90 each
Disc	£2.00 each	£4.00 each	£4.00 each	£4.75 each	£4.75 each

Post & Packing	Code	UK, BFPO, Ch.Is	Europe Eire	Americas, Africa Mid East	Elsewhere
Please add the cost of p&p when ordering. When ordering several items use the highest price code, plus half the price of each subsequent code.	a	£1.00	£1.60	£2.40	£2.60
	b	£2.00	£3.00	£5.00	£5.50
	c	£3.10	£6.50	£10.50	£11.50

* Please use stock code 'a' when ordering magazines and discs

Discounts

All prices listed below include VAT but do not include post & packing. If in doubt please check by phone when placing your order.

		RRP	Discount Price
PAOMa	ArcOmnibus Games Disc	14.90	9.95
PASXb	ArcScan III	15.95	12.95
PAL1a	ArcScan III Library Disc 1	9.95	7.95
PAL2a	ArcScan III library Disc 2	9.95	7.95
0107c	C Development System	90.93	77.29
PCHWb	ChartWell	29.95	24.95
PDE2b	DeskEdit 2	31.95	26.95
PDA1a	Desktop Applications 1	14.90	9.95
0095b	HP DeskJet 500C Printer Driver	17.63	14.98
0096b	Desktop Thesaurus	22.33	18.98
0094b	Hard Disc Companion	52.88	44.94
0093c	Hearsay II	88.13	74.91
0098b	Masterfile 3	57.58	48.94
0108c	Ovation	116.33	98.88
0097b	Playback	22.33	18.98
PGLTb	PolyGlot	19.95	14.95
PFNT	RISC User Fonts Disc	14.90	9.95
1406a	RISC User Vol. 3 Special Disc	14.90	9.95
PV4Sa	RISC User Vol. 4 Special Disc	14.90	9.95
PV5Sa	RISC User Vol. 5 Special Disc	14.90	9.95
0090b	Star/Epson Printer Driver	17.63	14.98
0092b	TypeStudio	52.88	44.94
PWPTb	Wimp Programmer's Toolkit	19.95	14.95

RISC Developments Ltd., 117 Hatfield Road, St.Albans, Herts AL1 4JS
Telephone 0727 840303 Fax 0727 860263

Classifieds

Members may advertise their unwanted computer hardware and software through the personal ads column free of charge. However, we are unable to guarantee in which issue your advertisement will appear.

- BEEBUG 5.25" disc interface (Arc) 40T drive, DFS reader software and 50x 5.25" discs, the lot for only £50 o.n.o. Tel. (0332) 559334.

- A310 (1Mb RAM) 42Mb IDE hard drive and disc buffer MkII in 4 slot back plane, RISC OS (1989 upgrade), Morley teletext adaptor, PC Emulator (1.70), MS-DOS (3.21), Hearsay, Logistix, Emacs, RISC Forth, Hard Disc Companion and 'C', manuals and RISC User complete £500 o.n.o. Tel. 085-25 263.

- PC Emulator V1.7 (inc. Dr Dos 5.0) £45, 1st Word Plus V2 £30, Deltacat joystick £15. Tel. (0746) 765812.

- Acorn DTP £30, Genesis Plus £45, BEEBUG ISO C £45. Tel. (0525) 874597 after 2pm.

- Archimedes A310 colour monitor, 2Mb 2x3.5" floppy drives, 2 slot backplane, RISC OS 2, MEMC 1A, fan, manuals £550. Printer available, first class condition. Tel. (05395) 31545.

- Archimedes 310, 4Mb RAM, ARM3, Acorn colour monitor, 83Mb hard disc, manuals, software includes PC Emulator application discs etc. £750 o.n.o. Tel. (0590) 677625.

- A310 (2Mb RAM) with RGB colour monitor and 89Mb IDE hard disc, complete with manuals and various useful software, can be seen working in Chesham by arrangement £490 for quick sale. Tel. (0494) 785549.

- A410/1 with 4Mb RAM, 40Mb IDE HD, RISC OS 3.10 installed, manuals and lots of software (inc. Learning Curve) £900 o.v.n.o. £1,000 with multisync monitor. Tel. 071-703 5675.

- Oak external 20Mb SCSI hard disc with controller for A3000 £150, 3.5" disc drive with PSU £55, CC ROM board with Spellmaster ROM £35. Tel. (04243) 4500.

- A3000 RISC OS 3.1, 4Mb RAM, 42Mb external IDE hard disc, colour monitor c/v stand, Star LC10 colour printer, p inter stand, all leads, c/w original packing, manuals, apps discs and some software inc. 1st Word Plus £700. Tel. (0582) 833641 eves only.

- A410/1 with 20Mb hard disc, 4Mb RAM, colour monitor, PRM, manuals, software £550. Tel. (0865) 273846.

- WANTED: C Compiler for writing Modules and Wimp applications on A3000. Tel. (0773) 570235.

- French Archimedes user looking for other A440 Archimedes users in the South of France (Toulouse region) to exchange ideas and PD. Tel. 62 98 15 46.

- Archimedes A310 RISC OS 2, Acorn colour monitor, twin floppies, podule, Panasonic 24 pin printer with bulk sheet feeder, discs and software inc. Impression II, 1st Word Plus, PC Emulator, Flying Start Database games, all manuals £500 o.n.o. Tel. 081-567 3132 3pm-9pm anyday.

- Software for sale all at half price, complete with manuals and in perfect condition: Acorn PC Emulator version 1.8, Acorn Desktop C, Acorn Desktop Assembler, Easiwriter, Revelation 2, Revelation ImagePro, Desktop Database, Beebug C. The following software is available on CD ROMs: Dictionary of the Living World, Revelation 2, Complete works of Shakespeare, Complete works of Sherlock Holmes, and the Holy Bible, also RISC OS 2 PRMs and Microvitec 1441 super hi-res monitor. Tel. (0873) 853538.

- WANTED: Archimedes Assembler - Acorn Desktop Assembler or cheaper version. Must produce object code linkable with Desktop C version 4. Tel. (0590) 612345.

- A310-ST 47Mb hard drive + podule £170, Watford B/W Digitiser £70, 4-slot backplane + fan £30, Star LC24-200 colour printer £180. Tel. (05913) 388.

- EIZO 8060H.S 14" multisync monitor, 0.28mm dpi £140, buyer collects, Ramsey, Essex. Tel. (0255) 880257.

- A5000 4Mb RAM, Acorn multisync, Learning Curve with PC Emulator v1.8, various software, discs, books etc. £1400, Acorn Desktop C £150, Clares Illusionist £50, CC Compression £25, RISC User complete £30, Archive complete £30, BEEBUG complete £30, V21/ 22/23 /22bis/42/42bis MNP 4/5 modem, Terminals plus Arc to Hayes lead £150. All for £1700. Tel. 081-698 3772.

- Integrex colourjet 132 printer, boxed, all leads and manuals, only light home use £250. Tel. (0485) 542441.

- A3000, 4Mb RAM, 89Mb external IDE hard disc, RISC OS 3.1 serial upgrade + AKF12 monitor all manuals + discs, good condition, well loved and cared for £850. Tel. 081-551 1418.

- Watford Archi hand scanner £65, Repton 4 £12.50, Clares Illusionist £35. Tel. (06977) 46786.

- RISC User magazines from Vol.1 Issue 1 to date, complete, no discs. Offers? Tel. 085 25 263.

- Flexifile database package £45, 1st Word Plus release 2 £28, Acorn DTP £28, BEEBUG disc interface for A310/A440 with DFS reader software £28, Chocks Away compendium, Drop Ship, Real McCoy II, Conqueror, Break 147 £50. Tel. 051-606 0289.

- WANTED: Combined 5.25" and 3.5" drive for Master, manuals for Ovation (mine lost) and Viewsheet, copies of Peter Killworth's "How to Write Adventure Games" and "Creative Assembler on the BBC Micro". Tel. (0279) 813463 after 6pm.

- Hostages £4, Dread Dragon Droom £10, boxed with manual, Top Banana (from Hex see Vol.4 Issue 10) £5. Tel. 357 5 331961 or write to; P O Box 1830, Limassol, Cyprus, Fax; 357 5 331830. Offers?

- A310 upgraded to 4Mb hard disc, with Philips colour monitor, Taxan dot matrix printer and software £625. Tel. (0533) 857068.

- Oak Worra Winnie 100Mb external SCSI HD with PSU and case, only 10 months old £250. Tel. 081-590 4593 before 6pm Mon-Sat ask for Paul.

- RISC Dev. 2Mb RAM upgrade for A3000, 1yr old, excellent condition £35 o.n.o. Tel. (0522) 501394 after 6pm.

- Archimedes A540, mono scanner, printer, lots of original software and mags £950 o.n.o. Tel. 081-909 3871.

- LC 24-200 colour printer, Arc 440 internal HD, 3.5" floppy, external 5.25" floppy, monitor and software £800. Tel. (0344) 481815 after 6pm.

- Z88, original packaging, manual, 2x128k RAM packs, Spellmaster, power supply, Arc link and software £150. Tel. (0727) 841126 eves.

- A5000 40Mb drive 4Mb RAM, RISC OS 3.1, Masterfile II, Interword, Intersheet, Interspell, Enter the Realm, Dennis Wheatley, Pacmania, PC Emulator, Genesis Plus, 1st Word Plus, Acorn Desktop publishing, Impression Junior, DeskEdit, 20Mb ST506 drive. Offers? Tel. (0203) 410047.

- WANTED: Pipedream 4. Tel. (0203) 410047.

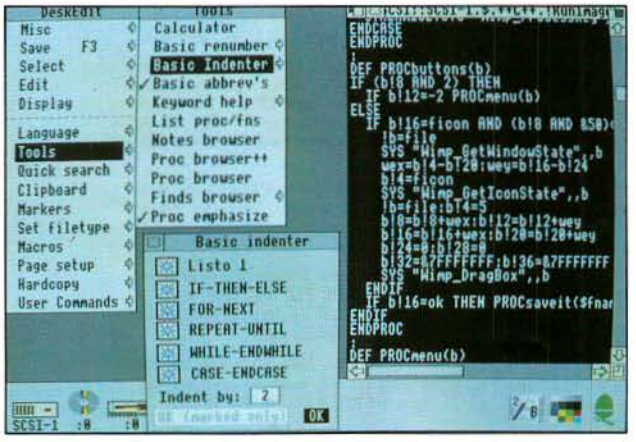
Advertisers Index

AU Enterprises	20	*Longman Logotron*	74,75
Circle Software	41	*Norwich Computer Services*	24
Clares Micro Supplies	58	*Oregan Software Developments*	65
Colton Software	8	*Serious Statistical Software*	24
Computer Concepts	76	*Techsoft UK*	30
David Pilling	48	*XOB*	54

DeskEdit 2

Harness the Power of Desktop Basic and C with

IF YOU TYPE IN OR EDIT BASIC OR C PROGRAMS THEN READ ON:



DeskEdit 2 is an exceptionally powerful desktop editor for Basic programs and C source code - but it is also very easy to use.

- Just open a window and type in your program. Press F3 to save it at any time. Press Ctrl-Shift-F3 and your Basic program will be saved and run interactively from within the Desktop - and if the name of the program is !RunImage then DeskEdit will run the parent application - Magic!
- If you are using line numbers, these are automatically handled for you. When you press Return at the end of a line, a new numbered line will be created for you. And you can renumber the whole program or any part of it directly from the menu.
- All Basic's abbreviations are automatically implemented.
- DeskEdit provides all the search and replace options of Edit plus some very special ones: DeskEdit's *QuickSearch* can take its target from any marked text (to avoid typing), and you can specify that it will only find matches in PROC and FN definitions.
- Special Browsers instantly build up scrollable lists of all defined procedures and functions, and clicking on any one takes you straight to it. You can also have Browsers open for ordinary finds, giving you a list of matches that you can go to instantly.
- DeskEdit contains more than 100 special key combinations -from Ctrl-F which will take you through your program one procedure or function definition at a time to Ctrl-D which inserts the Date.

- A fully customisable Basic Indenter will format selected portions of your program, indenting IF statements, FOR loops, REPEAT loops etc.
- An Undo feature lets you Undo and Redo your editing, and this together with all markers and many other features is optionally saved to disc when you save a program, so when you next load it in, everything is where you left it - you can even undo what you edited the week before!
- A customisable Help facility gives syntax Help on all Basic key words. A *Caret info* feature gives information about the character at the caret; and a file information feature gives you information on any file dragged to DeskEdit's icon when Alt is pressed.
- Finding your place in a program is especially easy with DeskEdit 2. There are numerous markers and position finder features which make scrolling through your program to find a particular line, a thing of the past.
- Plus Backup saves, special delete and tabbing options, a programmer's calculator which can import and export data, a flexible clipboard, powerful printout features, fully customisable user commands, powerful macros etc. etc.

Moreover, DeskEdit is just as at-home with text (handy for editing Obey files, writing letters, or complete books), and with the C language, where it provides most of the features offered to Basic users (where applicable) with some others added - including a syntax checker.

And there is much much more. So much in fact that in ***Archimedes World's*** *review of DeskEdit 2 (February 1993), it awarded a maximum score of 5 out of 5 in all four of its categories:*

Performance	*****
Features	*****
Value for money	*****
Overall	*****

And as you may have heard - ***DESKEDIT IS SO GOOD THAT IT IS USED WITHIN ACORN ITSELF.***

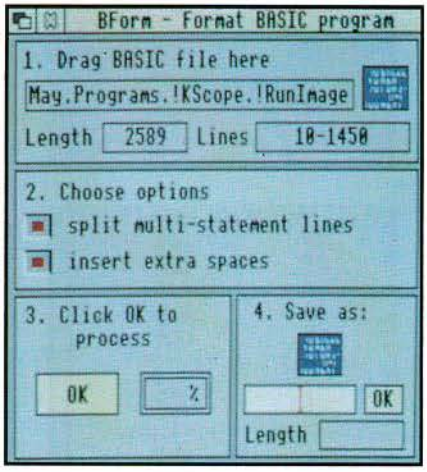
DeskEdit comes with:
- fully illustrated 70 page manual (with index)
- function keystrip
- smart quick reference card
- freebies, including a desktop dustbin and Acorn's multi-file Find application.

Stock Code: PDE2b
Price: £ 26.95 inc Vat
Upgrade: £9.95 inc Vat (Code PDEXb)

RISC DEVELOPMENTS, 117 Hatfield Rd, St Albans, Herts AL1 4JS. Tel. 0727 840303 Fax 0727 860263

Basic Program Formatter

by Graham Crow



Compacting Basic programs, either manually or by using an appropriate utility, reduces the amount of memory needed and can increase the speed of a program, but it has the disadvantage of making programs unreadable. The Basic Program Formatter reverses the effects of compaction, working in the background and showing percentage complete, so you can get on with something else while long programs are reformatted.

The resulting formatted program is highly readable, especially using Basic's LISTO facility. Multi-statement lines are broken into single statements on separate lines, and spaces are inserted between keywords. Both options are controlled by switches on the application's dialogue box. The only thing the formatter can't do is replace any REM lines lost when the program was originally compacted!

Enhanced Sliding Block Puzzle

by Richard Taylor

This application is a versatile and attractive desktop implementation of the traditional sliding block puzzle, featuring "solid dragging" of the puzzle pieces.

Any sprite can be used as the basis for the puzzle simply by dragging it to the puzzle window, and the view can be switched between the full sprite and the scrambled version at any time.

The size of the puzzle can range from 2 by 2 to 12 by 12, catering for all levels of keenness and ability. In addition, there are four levels of difficulty, from Easy to Very Hard, which refer to the amount of scrambling performed. The first three levels simulate sliding the pieces around, which tends to keep them near their true position, while Very Hard randomly swaps pieces, but in such a way that the puzzle can always be solved.

For reasons of space, these applications are only available on this month's magazine disc.

S-BASE

From stock control to accounting, from library management to customer information, *S-Base* is a programmable, fully relational database management system, which makes the development of high quality, customised, database applications quick and easy.

S-Base provides a state-of-the-art, WIMP-based, integrated development environment. At its heart is the S language, a high level database programming language, with over 300 commands and functions. In addition, powerful program editors, a style-based template editor, an intelligent screen layout editor and a multifile database designer, ensure that design, programming and testing can all be carried out within the *S-Base* environment.

Using *S-Base*, you can create highly customised applications with minimal programming effort. A simple, card-based multi-tasking application can be created with only a few lines of code; a large, complex, high performance system can be reliably engineered in the shortest time.

S-Base is available in three versions: *S-Base Personal*, *S-Base Developer* (which may be used to create compiled applications for sale) and *S–Base Developer Plus* (for creating networked, multiuser applications).

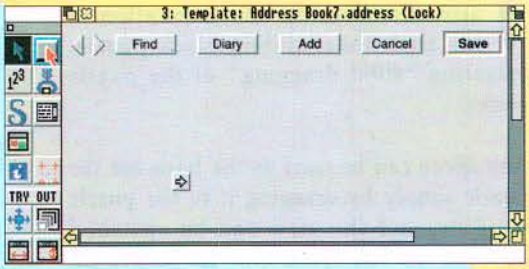
RESOURCES

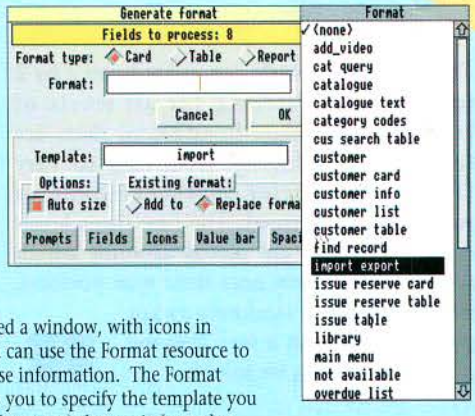
An *S-Base* application is made up from a number of 'resources'. For example, the 'Files' resource defines how data is to be stored; the 'Templates' resource creates a window, with icons and buttons; the 'Formats' resource displays database information in the window.

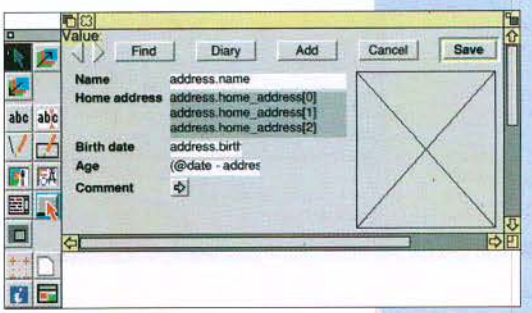
You can copy useful resources from the example applications provided, or from applications you have written, then modify them to fit your new application. *S-Base* copies related resources automatically.

TEMPLATES

An important part of creating a data application is the design of the windows and icons. *S-Base* provides a comprehensive window designer to ensure that your applications are consistent with other RISC OS based software and have a professional look.







FORMATS

Having created a window, with icons in position, you can use the Format resource to insert database information. The Format dialogue asks you to specify the template you want to use (by name) then switch on the various format elements — prompts, fields, icons, value bar, spacing. *S-Base* will then insert the correct number of fields, of the correct length, into the window, together with prompts derived from the field labels. This information can be re-positioned, and you can choose different fonts and colours to create an attractive screen display.

THE PROGRAMMABLE RISC OS RDBMS

INTEGRATION

S-Base provides an interpreted, completely interactive environment in which to develop your application. Whenever an error occurs, *S-Base* immediately displays the object that caused the error, in a suitable editor, so that you can inspect and modify it.

Once your application is completed, and tested, *S-Base* Developer will compile it into a compact, distributable binary file, which cannot be edited by your users.

For the beginner, *S-Base* is supplied with a number of 'shell' applications which can be modified and extended with very little technical knowledge.

FLEXIBLE DATA HANDLING

An *S-Base* application can incorporate menus, dialogues, tables and multi-choice selectors — whatever data entry method is most suitable for your users. The format layout editor makes it easy to assemble and link these elements together into an integrated design, and *S-Base* checks everything you do for consistency, reducing the possibility of frustrating mistakes.

Besides text (in any outline font style), cards, reports and tables can include drawings or sprites. Reports can be produced in virtually any format, including multi-column text, address labels, ID cards, stock catalogues, etc.

HIGH SPEED

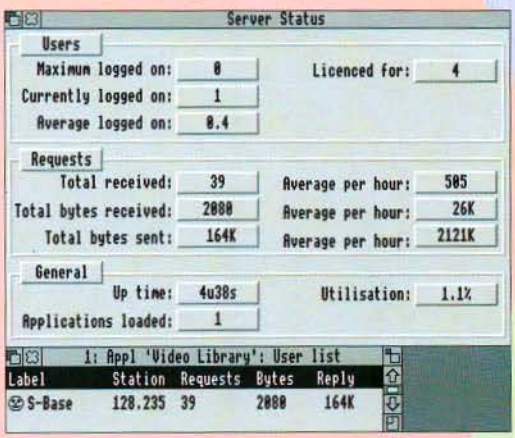
S-Base is designed to handle large volumes of data at speeds acceptable to the user: An *S-Base* application can process very large files, containing many thousands of records, in seconds, updating the screen as fast as a C program written by an expert.

Whereas a typical database can take up to five minutes to add 500 records to a file with five indexes (since the indexes must be updated after each record), *S-Base* can add 5000 records in under one minute (timed on an A5000), by performing the re-indexing later.

S-Base places no limits on the number of files you can open at once. Your application can compare, process and display data from dozens of different files with no difficulty.

NETWORKED AND MULTI-USER APPLICATIONS

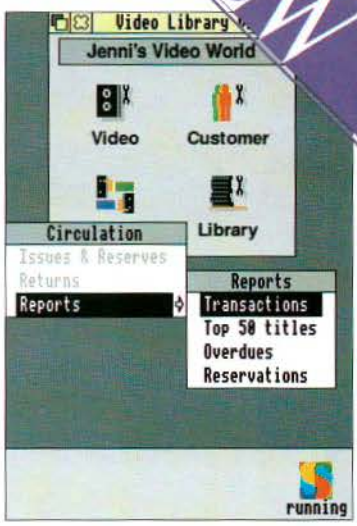
S-Base Developer Plus can be used to create applications that operate as multi-user systems over a network — where the combination of a smart database server, and highly optimised data exchange protocols, ensures high speed operation, even over Econet. Operation over the network is completely transparent to both the user and the developer.



The multi-tasking S-Base server application, S-Net, is independent of the network file server and can run on any network machine. A single S-Net server can offer any number of applications across the network, so a 2 Mb machine can serve several clients running different applications. Client machines can present a menu of applications available on the network or can be configured to locate the required application automatically.

Applications designed for network operation will run on a stand alone machine without modification.

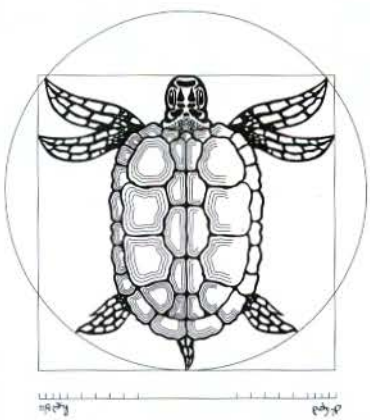
NEW



Single User Prices

S-Base Personal	£99.00
S-Base Developer	£199.00
S-Base Developer +	£299.00

For *S-Net*, and education and business site licence prices, or for further product information, please contact us.



LONGMAN LOGOTRON

124 Cambridge Science Park
Milton Road
Cambridge CB4 4ZS
Tel (0223) 425558
Fax (0223) 425349

THE PERFECT ANSWER

The BJ-200 is a brand new black and white printer from Canon, the market leaders in inkjet printing. This is a high speed, high resolution printer ideally suited to the Archimedes range of computers.

Computer Concepts supply the BJ-200 with a special version of their TurboDrivers - the fastest printer drivers available for the Archimedes. The printer also includes a built-in 80 page sheet feeder. The price for the printer with TurboDrivers is just £299 + vat (+p&p) - a full £100 less than the recommended retail price.

At 360 dpi the BJ-200 offers significantly higher resolution than other 300 dpi inkjet printers and at faster than 1 page per minute for a full page of graphics (or 3 pages per minute for plain text) it is also faster than other printers in its price range. And being an inkjet it is whisper quiet when printing.

RISC OS Turbo DRIVERS

The BJ-200 with TurboDrivers is the perfect answer to those users seeking the best quality prints in the least possible time, without going to the expense of a laser printer. In fact we guarantee this is the fastest high quality printer available for less than a laser printer, or your money back.

Price
£299 + £10 p&p + VAT (£363.07 inc)

Speed comparison table

Comparison print times using Acorn printer drivers with a Deskjet500 against TurboDrivers with a BJ-200.
All times are in seconds shown on the ARM3 and ARM2 based computers.

To print a 4 page document consisting of a spread of different fonts, text sizes and graphics:

	DeskJet 500	BJ-200	Speed increase factor
Time to get control back - ARM3	313	59	5.3
Last page completed - ARM3	316	200	1.6
Time to get control back - ARM2	832	155	5.4
Last page completed - ARM2	834	232	3.6

Computer Concepts Ltd

GADDESDEN PLACE HEMEL HEMPSTEAD HERTS HP2 6EX

ORDER HOTLINE
TELEPHONE THIS NO. FOR IMMEDIATE DESPATCH
0442 63933
OR FAX YOUR ORDER ON 0442 231632